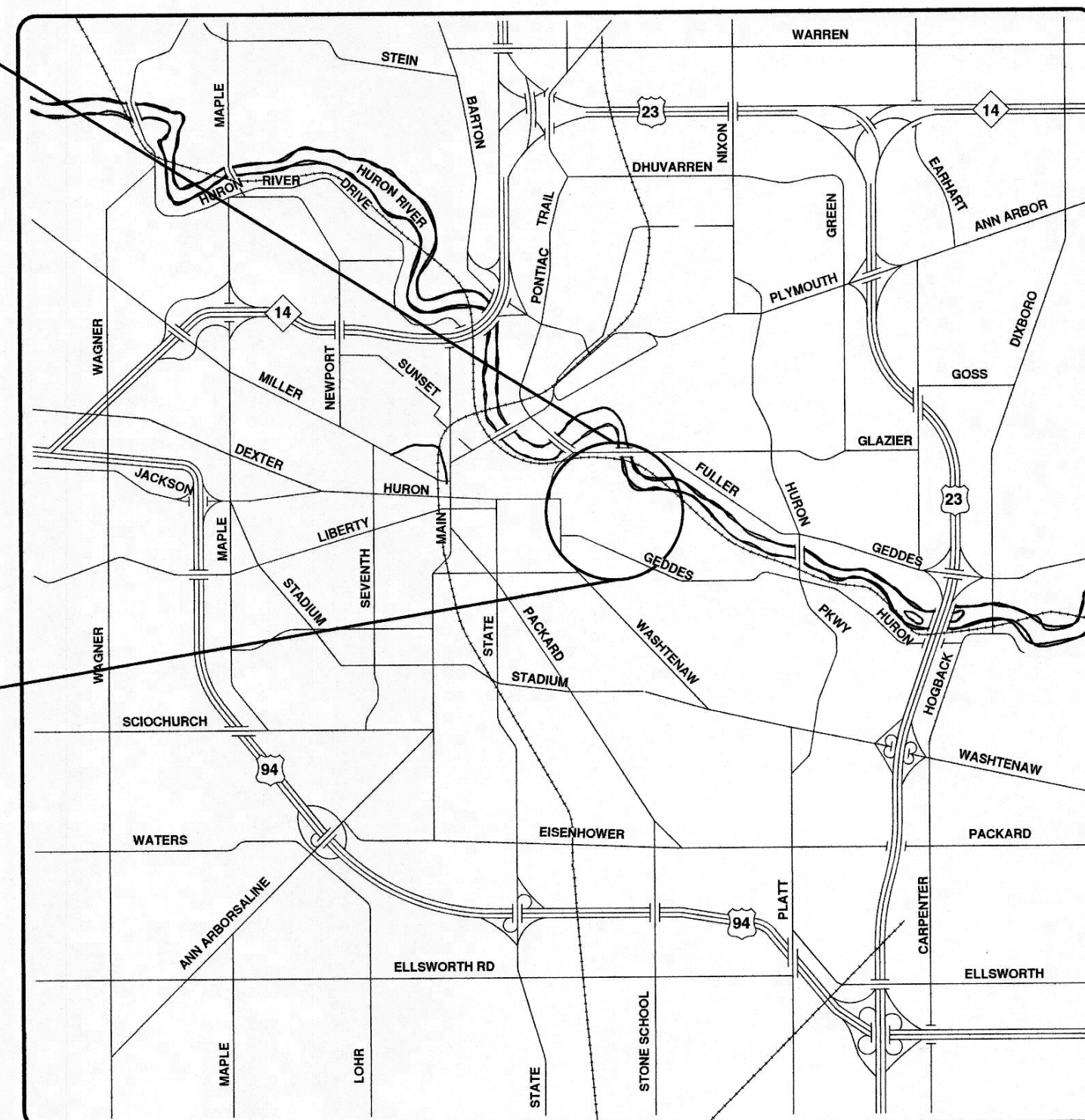
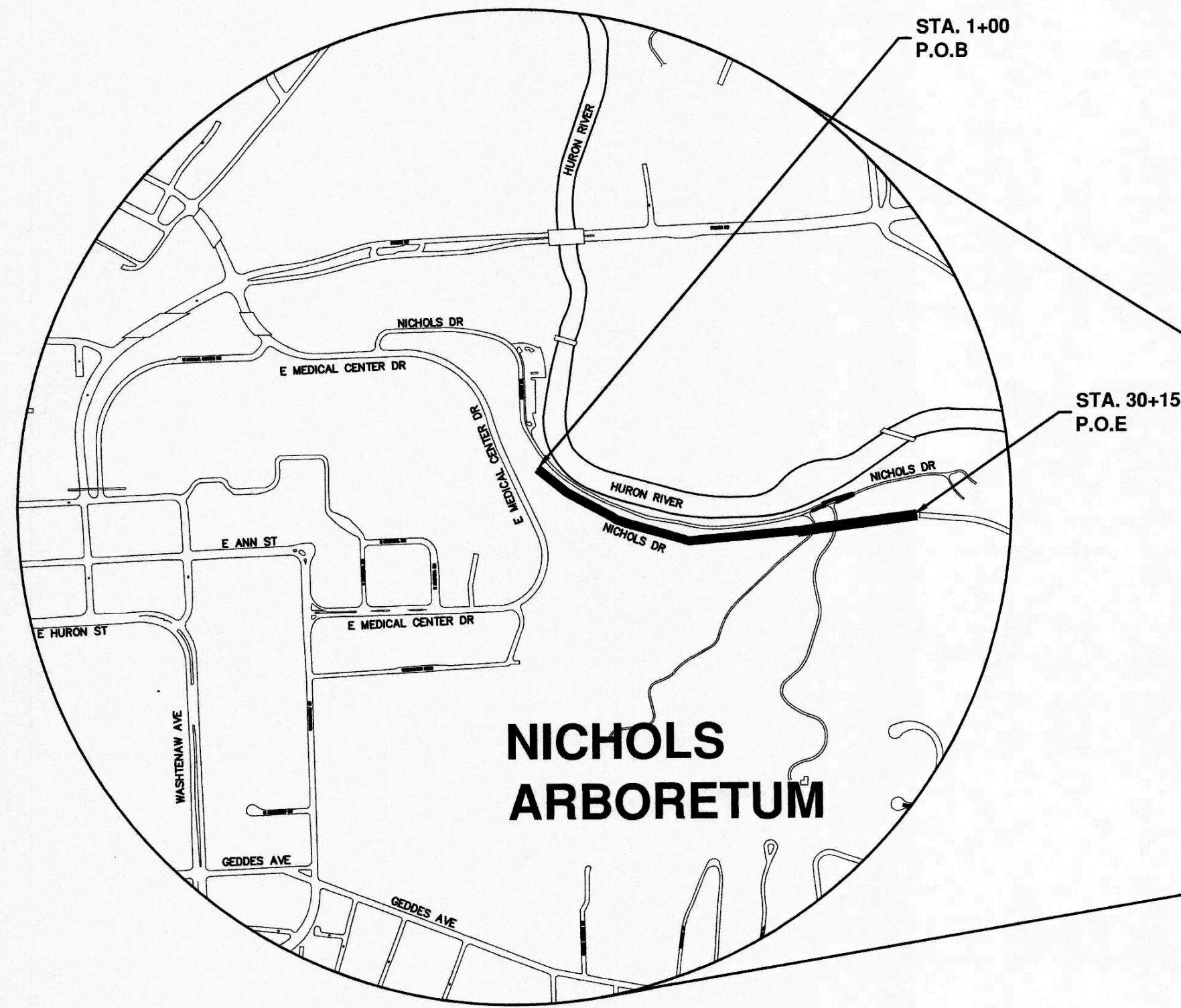


# CITY OF ANN ARBOR PROJECT MANAGEMENT

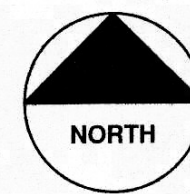
IN COOPERATION WITH THE  
UNIVERSITY OF MICHIGAN

## NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION

ITB No. 4461, FILE No. 2016-026



VICINITY MAP



**NOTES:**

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR, THE UNIVERSITY OF MICHIGAN, AND FTCH ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 1994 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, ITS DETAILS, WHICH ARE INCLUDED BY REFERENCE, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.



| REV. | ISSUED FOR BID | DESCRIPTION | DATE       | DRAWN | CHECKED |
|------|----------------|-------------|------------|-------|---------|
|      |                |             | 10-18-2016 |       |         |

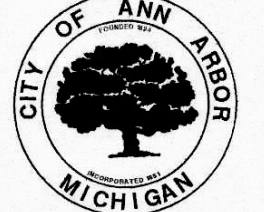
CITY OF ANN ARBOR  
PUBLIC SERVICE DEPARTMENT  
3011 STATE STREET  
ANN ARBOR, MI 48107-8847  
www.a2gov.org



| SHEET LIST TABLE |  |
|------------------|--|
| SHEET NUMBER     | SHEET TITLE  |
| 1                | COVER SHEET  |
| 2                | NOTES, LEGEND AND CONTACTS                         |
| 3                | NATURAL FEATURES PROTECTION PLAN                   |
| 4                | TREE SURVEY  |
| 5                | OVERALL PLAN                                       |
| 6                | PLAN AND PROFILE - STA. 1+00 TO 10+50              |
| 7                | PLAN AND PROFILE - STA. 10+50 TO 20+50             |
| 8                | PLAN AND PROFILE - STA. 20+50 TO 30+65             |
| 9                | ENLARGED SITE PLANS                                |
| 10               | SANITARY FLOW DIVERSION AND BYPASS PUMPING PLAN I  |
| 11               | SANITARY FLOW DIVERSION AND BYPASS PUMPING PLAN II |
| 12               | MAINTENANCE OF TRAFFIC PLAN I - OVERALL SITE       |

| SHEET LIST TABLE |   |
|------------------|---|
| SHEET NUMBER     | SHEET TITLE   |
| 13               | MAINTENANCE OF TRAFFIC PLAN II - LOT M29  |
| 14               | MAINTENANCE OF TRAFFIC PLAN III - OFF-SITE WATER SOURCE LOCATION AND HAUL ROUTE     |
| 15               | MAINTENANCE OF TRAFFIC PLAN IV - CLEANING, TELEVISIONING, AND LINING AT MH 71-70049 |
| 16               | MAINTENANCE OF TRAFFIC PLAN V - CLEANING AND TELEVISIONING AT MH 71-69893           |
| 17               | MISCELLANEOUS DETAILS I   |
| 18               | MISCELLANEOUS DETAILS II  |
| 19               | CHAMBER ROOF REPLACEMENT DETAILS  |
| 20               | SOIL EROSION AND SEDIMENTATION CONTROL NOTES  |
| 21               | SOIL EROSION AND SEDIMENTATION CONTROL PLAN - STA. 1+00 TO STA. 20+50               |
| 22               | SOIL EROSION AND SEDIMENTATION CONTROL PLAN - STA. 20+50 TO 30+65                   |
| 23               | SOIL EROSION AND SEDIMENTATION CONTROL DETAILS                                      |
| 24-34            | UNIVERSITY OF MICHIGAN HOSPITAL REPLACEMENT PROJECT RECORD DRAWINGS                 |

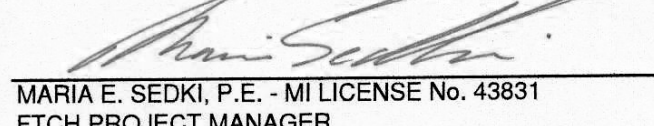
**PROJECT MANAGEMENT SERVICES UNIT**

 **Michael G. Neuring, P.E.**  
MICHAEL G. NEURING, P.E. - MI LICENSE No. 38744  
SENIOR PROJECT MANAGER

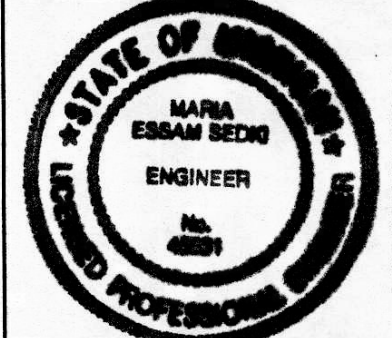
10/18/2016  
DATE

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PREPARED UNDER THE SUPERVISION OF

  
**MARIA E. SEDKI, P.E.** - MI LICENSE No. 43831  
FTCH PROJECT MANAGER

10/18/2016  
DATE



**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**

NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION

COVER SHEET

ENGINEER'S SEAL

ENGINEER'S SEAL

SCALE PLAN:

DRAWING No. 2016-026-C1

SHEET No. 1 OF 34

**CONSTRUCTION NOTES:**

- ALL WORK SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION AS APPLICABLE.
- DRIVEWAYS AND ENTRANCES TO BUILDINGS, REAL PROPERTY, AND THE LIKE SHALL NOT BE BLOCKED EXCEPT FOR SHORT DURATIONS AND ONLY WHEN APPROVED BY THE ENGINEER. VEHICULAR AND PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES.
- LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LEADS AS DEPICTED ON THE PLANS ARE APPROXIMATE AND SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AND ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO PERFORMING THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXCAVATE AHEAD AND DETERMINE THE PRECISE HORIZONTAL AND VERTICAL LOCATION OF THESE UTILITIES. THE CONTRACTOR SHALL REPORT IN WRITING ANY CONFLICTS SO THAT THE ENGINEER MAY DETERMINE AN APPROPRIATE COURSE OF ACTION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED CONTRACT ITEMS OF WORK. ANY DAMAGE TO UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AS NECESSARY.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DELAYS, DAMAGES, COSTS AND/OR CHARGES INCURRED DUE TO AND/OR BY REASON OF ANY UTILITY, STRUCTURE, FEATURES AND/OR SITE CONDITION, WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE, AT ITS SOLE EXPENSE, TO AS GOOD OR BETTER CONDITION, ANY AND ALL UTILITIES, STRUCTURES, FEATURES AND/OR SITE CONDITIONS WHICH ARE IMPACTED BY REASON OF THE WORK, OR INJURED BY ITS OPERATIONS, OR DURING THE OPERATIONS OF ITS SUBCONTRACTORS OR SUPPLIERS.
- NO EXTRA PAYMENTS OR ADJUSTMENTS TO UNIT PRICES WILL BE MADE FOR DAMAGES, DELAYS, COSTS AND/OR CHARGES DUE TO EXISTING UTILITIES, STRUCTURES, FEATURES AND/OR SITE CONDITIONS NOT SHOWN OR BEING INCORRECTLY SHOWN OR REPRESENTED ON THE PLANS.
- DURING NON-WORKING HOURS ANY OPEN TRENCH, EXCAVATION OR SANITARY STRUCTURE SHALL BE PROPERLY SECURED WITH PROTECTIVE FENCING AND TEMPORARY COVER. TEMPORARY COVER(S) OVER SANITARY CHAMBERS SHALL BE CAPABLE OF WITHSTANDING THE WEIGHT OF A HUMAN/DEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS".
- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
- THE CONTRACTOR SHALL BACKFILL TRENCHES OR EXCAVATIONS IN ACCORDANCE WITH TRENCH DETAIL(S) SPECIFIED ON PLANS. THIS WORK WILL NOT BE CONSIDERED ADDITIONAL AND SHALL BE INCLUDED IN THE APPROPRIATE ITEM OF WORK.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO E. MEDICAL CENTER DRIVE, LOT M29, THE ARBORETUM, NICHOLS DRIVE AND THE CARETAKER'S RESIDENCE THROUGHOUT THE COURSE OF CONSTRUCTION AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS.
- ALL CASTINGS AND FITTINGS REMOVED DURING CONSTRUCTION ARE THE PROPERTY OF THE CITY OF ANN ARBOR. THE CONTRACTOR, WITHIN 48 HOURS, SHALL DELIVER THEM TO THE CITY OF ANN ARBOR W.R. WHEELER SERVICE CENTER LOCATED AT 4251 STONE SCHOOL ROAD. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY TRAFFIC CONTROL DEVICES AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA AND APPROACHES TO PROJECT SITE, UNTIL THE FINAL COMPLETION OF THE PROJECT. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY ROAD SURFACE, NICHOLS DRIVE WITHIN THE CONSTRUCTION AREA AND APPROACHES TO PROJECT SITE, AND FEATURES WITHIN THE ARBORETUM, UNTIL THE FINAL COMPLETION OF THE PROJECT. ANY DAMAGE TO EXISTING ROAD SURFACES, STRUCTURES, AND/OR FEATURES WITHIN THE PROJECT LIMITS AND APPROACHES TO PROJECT SITE, SHALL BE REPAIRED TO EXISTING OR BETTER CONDITION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS".
- THE LOCATION OF MATERIAL STOCK PILES AND ON-SITE STAGING AREAS TO BE APPROVED BY THE ENGINEER. ANY MATERIALS STOCKPILED OR STORED SHALL NOT CREATE AN EROSION PROBLEM, INTERFERE WITH DRAINAGE, OR CREATE INSUFFICIENT SIGHT DISTANCE.
- EXISTING STREET NAME, GUIDE, REGULATORY SIGNS, MAILBOXES, ETC., WHICH CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED PRIOR TO CONSTRUCTION, STORED IN A MANNER WHICH WILL PREVENT DAMAGE, AND RE-SET IN LOCATIONS AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS."

**DESCRIPTION OF SITE AND EXPECTED BEHAVIOR:**

NICHOLS ARBORETUM (THE ARBORETUM) IS 123 ACRE PARCEL OF LAND THAT IS JOINTLY OWNED BETWEEN THE UNIVERSITY OF MICHIGAN AND THE CITY OF ANN ARBOR. THE ARBORETUM IS COMPRISED OF SEVERAL DIFFERENT BOTANICAL AREAS CONSISTING OF VARIOUS TYPES OF GROUND COVER, NATIVE PRAIRIE AREAS, WETLANDS, WOODLANDS, AND THE HURON RIVER. THERE ARE HUNDREDS OF DIFFERENT AND UNIQUE TYPES OF PLANTS, TREES, AND WILDLIFE CONTAINED WITHIN THE ARBORETUM. ALSO, THERE ARE WALKING TOURS, SPECIAL EVENTS, AND SEVERAL OTHER USES OF THE ARBORETUM ON A DAILY AND WEEKLY BASIS. CONSEQUENTLY, THE AREA SURROUNDING THE WORK AREA IS TO BE PRESERVED TO THE GREATEST EXTENT POSSIBLE.

TO THIS END, THE CONTRACTOR AND THEIR FORCES WILL NOT BE ALLOWED TO PARK VEHICLES INDISCRIMINATELY ALONG NICHOLS DRIVE OR OTHER AREAS OF THE ARBORETUM, DISTURB AREAS THAT ARE NOT DIRECTLY IMPACTED BY THE CONSTRUCTION, LITTER, OR OTHERWISE DAMAGE THE PREMISES. THE CONTRACTOR'S EMPLOYEES ARE EXPECTED TO RESPECT THE AREA AND ALL ITS USERS. DISORDERLY OR INTEMPERATE EMPLOYEE BEHAVIOR WILL NOT BE TOLERATED AND MAY RESULT IN THE EMPLOYEE'S REMOVAL FROM THE JOBSITE.

THE CONTRACTOR IS EXPECTED TO WORK IN A HARMONIOUS MANNER WITH THE USERS OF THE ARBORETUM, CITY OF ANN ARBOR AND UNIVERSITY OF MICHIGAN STAFF, AND THE PUBLIC IN GENERAL.

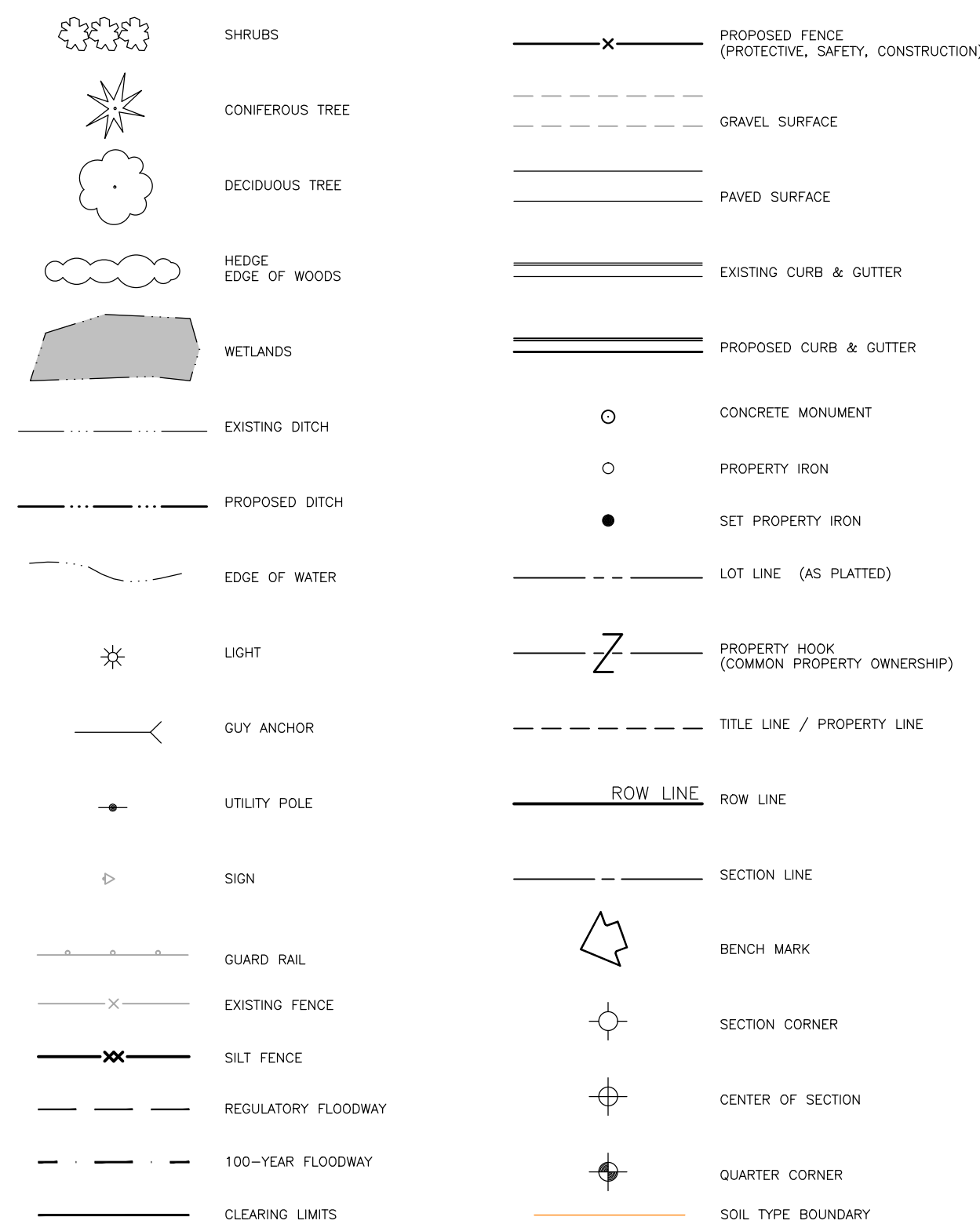
**PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.**

| PERMIT   | ISSUING AUTHORITY                            |
|--|--|
| LANE CLOSURE PERMIT*                                 | CITY OF ANN ARBOR<br>PROJECT MANAGEMENT UNIT |
| GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT* | CITY OF ANN ARBOR<br>CUSTOMER SERVICE        |
| RIGHT-OF-WAY PERMIT*                                 | CITY OF ANN ARBOR<br>CUSTOMER SERVICE        |
| * NO COST TO CONTRACTOR                              |  |

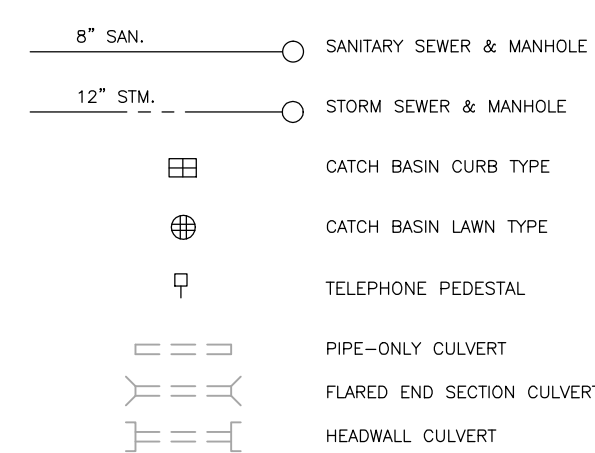
**CONTACT INFORMATION**

| PUBLIC UTILITIES                  | OWNER  | CONTACT                             |
|-----------------------------------|--|-------------------------------------|
| WATER                             | CITY OF ANN ARBOR<br>FIELD OPERATIONS SERVICE UNIT<br>W.R. WHEELER SERVICE CENTER<br>4251 STONE SCHOOL ROAD<br>ANN ARBOR, MI 48108 | DAN WOODEN<br>(734) 794-6350        |
| SANITARY                          |  | MARK COZART<br>(734) 794-6350       |
| STORM                             |  | MATT WALDSMITH<br>(734) 794-6350    |
| FORESTRY                          |  | STEVEN GOEBEL<br>(734) 794-6350     |
| SIGNS<br>SIGNALS<br>STREET LIGHTS |  | CHUCK FOJTIK<br>(734) 794-6361      |
| PRIVATE UTILITIES                 | OWNER  | CONTACT                             |
| GAS                               | DTE ENERGY<br>3150 E. MICHIGAN AVE,<br>YPSILANTI TOWNSHIP, MI 48198  | ROBERT CZAPIEWSKI<br>(734) 544-7818 |
| ELECTRIC                          | DTE ENERGY<br>WESTERN WAYNE SERVICE CENTER<br>8001 HAGGERTY ROAD<br>BELLEVILLE, MI 48111   | CLAY COMBEE<br>(734) 397-4112       |
| CABLE                             | COMCAST<br>27800 FRANKLIN ROAD<br>SOUTHFIELD, MI 48034   | RON SUTHERLAND<br>(313) 999-8300    |
| PHONE                             | AT&T<br>550 S. MAPLE ROAD<br>ANN ARBOR, MI 48103   | (734) 996-2135                      |
| FIBER OPTIC                       | MCI<br>2800 N. GLENFILLE ROAD<br>RICHARDSON, TX 75082  | DEAN BOYERS<br>(972) 729-6016       |

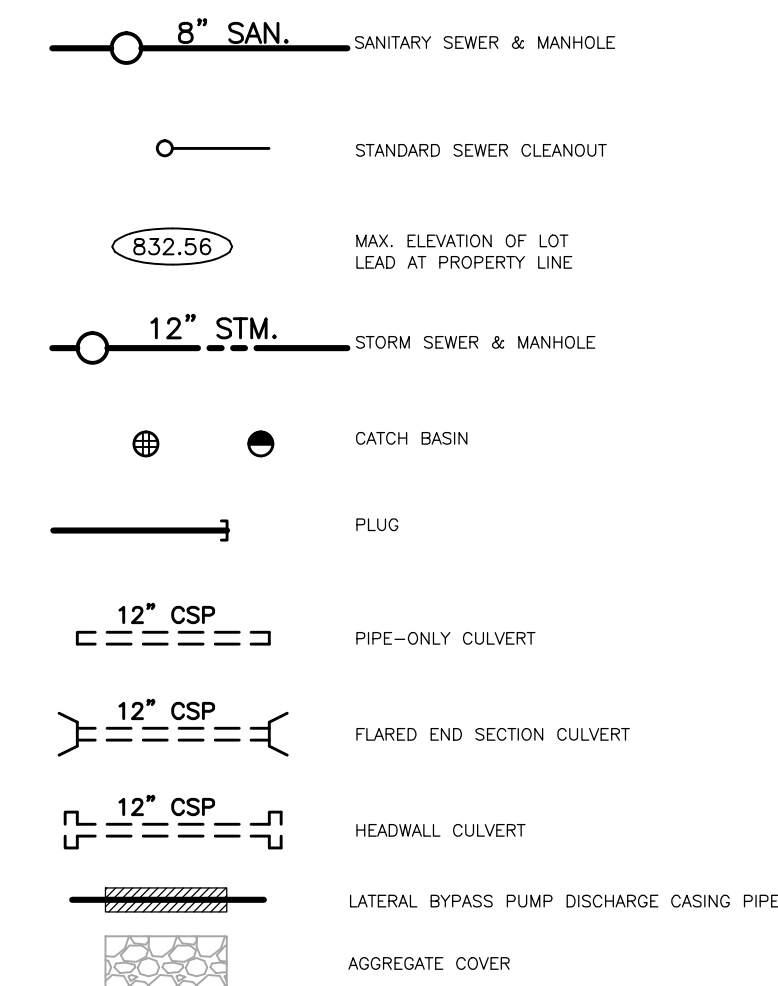
**TOPOGRAPHY -- PLAN**



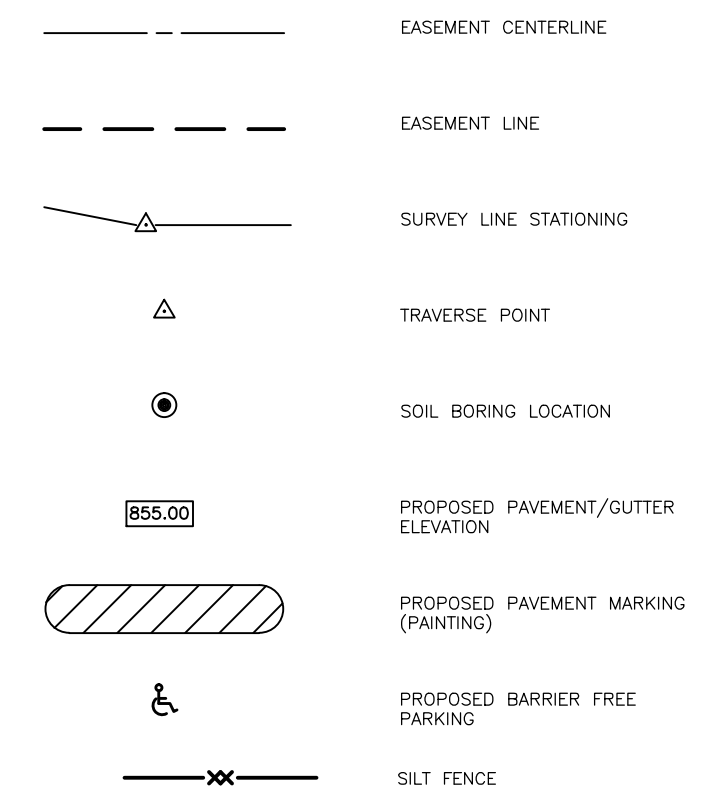
**EXISTING UTILITIES**



**PROPOSED UTILITIES**



**MISCELLANEOUS**



| DATE       | DRAWN | CHECKED |
|------------|-------|---------|
| 10-18-2016 |       |         |

CITY OF ANN ARBOR  
PUBLIC SERVICE  
301 EAST HURON STREET  
ANN ARBOR, MI 48107-8647  
734-794-6410  
www.a2gov.org



**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
NOTES, LEGEND AND CONTACTS

SCALE PLAN:  
DRAWING No.  
2016-026-N1

## NATURAL FEATURES PROTECTION PLAN

1. PROJECT PURPOSE
  - 1.1. THE NICHOLS ARBORETUM SANITARY SEWER CONVEYS WASTEWATER FROM THE CITY OF ANN ARBOR, THE UNIVERSITY OF MICHIGAN HOSPITAL, SURROUNDING COMMUNITY, BUSINESSES AND OTHER UNIVERSITY FACILITIES. THIS PORTION OF SANITARY SEWER IS DIFFICULT TO ACCESS AND MAINTAIN. PRELIMINARY INSPECTION SHOWED THAT SEVERAL MANHOLES AND STRUCTURES ARE SEVERELY CORRODED, STRETCHES OF SEWER CONTAIN CONSIDERABLE SEDIMENT AND ONE OF THE TWO 24-INCH SIPHONS IS COMPLETELY PLUGGED AND INOPERABLE.
  - 1.2. THE NICHOLS ARBORETUM SANITARY SEWER AND SIPHON REHABILITATION PROJECT IS ESSENTIAL TO MAINTAINING THE INTEGRITY OF THE CITY OF ANN ARBOR'S INFRASTRUCTURE, ELIMINATING SUSCEPTIBILITY OF LEAKING JOINTS, COLLAPSING PIPES AND SANITARY SEWER OVERFLOWS (SSOs) TO THE ADJACENT PARK AND HURON RIVER.
  - 1.3. PRESERVING THE NATURAL FEATURES AND RECREATIONAL AESTHETIC OF THE NICHOLS ARBORETUM TO MAXIMUM EXTENT POSSIBLE WAS A CRITICALLY IMPORTANT CONSIDERATION IN EVERY STAGE OF THE PROJECT'S DESIGN.
2. SEE TREE SURVEY INVENTORY ON SHEET 4 IDENTIFYING LOCATION, TYPE AND CONDITION OF EACH TREE (ABOVE 6") WITHIN THE AREA OF WORK.
3. ADDITIONAL NATURAL FEATURES LOCATED WITHIN THE PROJECT LIMITS INCLUDE:
  - 3.1. WETLANDS (MARKED WETLAND A THROUGH F)
  - 3.2. WATERCOURSE (HURON RIVER)
  - 3.3. ENDANGERED SPECIES HABITAT.
    - 3.3.1. RARE SPECIES REVIEW #1830 WAS CONDUCTED TO CHECK THE PROJECT LOCATION AGAINST THE MICHIGAN NATURAL FEATURES INVENTORY NATURAL HERITAGE DATABASE.
    - 3.3.2. FIELD SURVEY WAS CONDUCTED BY THE UNIVERSITY OF MICHIGAN AND NO THREATENED AND ENDANGERED SPECIES WERE FOUND TO BE PRESENT WITHIN PROJECT LIMITS.
  - 3.4. STEEP SLOPES
4. NATURAL FEATURES PROTECTION PLAN:
  - 4.1. TREES:
    - 4.1.1. ALL TREES ARE TO BE PRESERVED AND PROTECTED UNLESS SHOWN OTHERWISE ON THE PLANS AND INDICATED IN THE TREE SURVEY.
    - 4.1.2. TREE PROTECTION DETAILS ARE SHOWN ON SHEET 23 AND FURTHER DESCRIBED IN THE SPECIFICATIONS. CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PRESERVE TREES MARKED TO BE PROTECTED.
  - 4.2. WETLANDS:
    - 4.2.1. WETLANDS A, B, C, D, E AND F ARE TO BE PRESERVED IN ACCORDANCE WITH THE SPECIFICATIONS AND WETLAND PROTECTION DETAILS. ALL CONSTRUCTION ACTIVITY SHALL BE PERFORMED TO AVOID IMPACTING THESE WETLANDS UNLESS OTHERWISE SHOWN ON THE PLANS.
    - 4.2.2. CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PRESERVE ALL WETLANDS.
  - 4.3. HURON RIVER WATERCOURSE:
    - 4.3.1. THE RIVER SHALL BE PROTECTED AT ALL TIMES FROM THE IMPACTS OF CONSTRUCTION ACTIVITIES.
    - 4.3.2. SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES CALLED FOR IN THE SESC PLANS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT TO CONTROL MIGRATION OF SILT, SEDIMENT AND OTHER DEBRIS MIGRATING TO THE RIVER.
    - 4.3.3. BYPASS PUMPING OPERATIONS SHALL INCLUDE DAILY INSPECTION OF DISCHARGE PIPING INTEGRITY AND CONTAINMENT FOR DIESEL GENERATOR/PUMPS, AS REQUIRED.



| REV. | DESCRIPTION    | DATE       | DRAWN | CHECKED |
|------|----------------|------------|-------|---------|
|      | ISSUED FOR BID | 10-18-2016 |       |         |

CITY OF ANN ARBOR  
 PUBLIC SERVICE  
 301 EAST HURON STREET  
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 P.O. BOX 88407  
 ANN ARBOR, MI 48108-8847  
 734.754.4410  
 www.aagov.org

**PROJECT MANAGEMENT - CITY OF ANN ARBOR**  
 NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
 NATURAL FEATURES PROTECTION PLAN

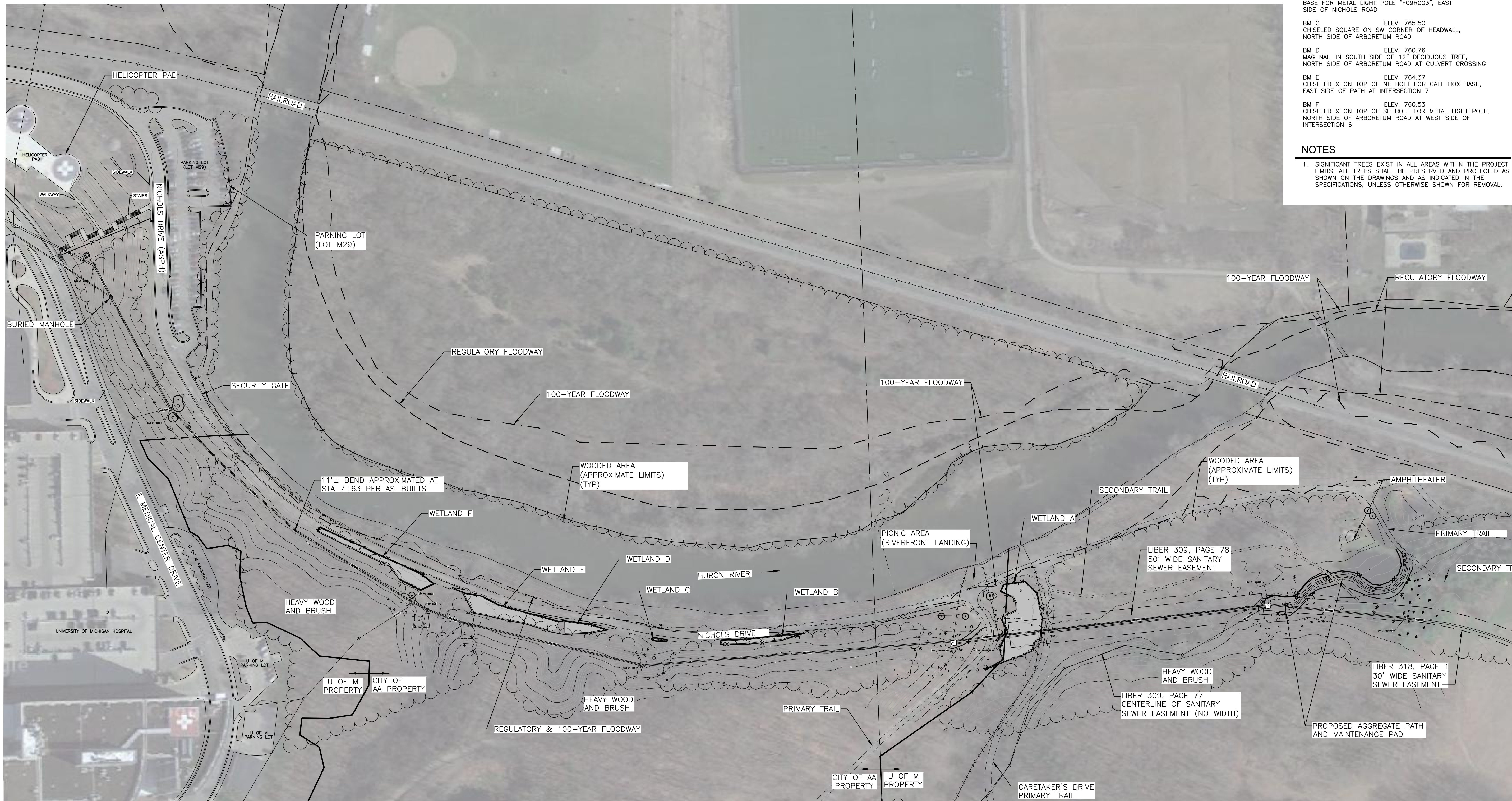
SCALE PLAN:   
 DRAWING No. 2016-028-NF-1

**Table 1 – Tree Survey**  
Nichols Arboretum Sewer Project  
Ann Arbor, Michigan

| Manhole Number | Tree Tag Number          | Scientific Name            | Common Name                | Diameter at Breast Height (inches) | Tree Condition |   |
|----------------|--------------------------|----------------------------|----------------------------|------------------------------------|----------------|---|
| 71-68806       | 1409                     | <i>Quercus rubra</i>       | Northern red oak           | 8.4                                | 1              |   |
|                | 1410                     | <i>Quercus rubra</i>       | Northern red oak           | 7.5                                | 1              |   |
|                | 1411                     | <i>Quercus rubra</i>       | Northern red oak           | 12.3                               | 1              |   |
|                | 1412                     | <i>Quercus rubra</i>       | Northern red oak           | 9.2                                | 1              |   |
|                | 1413                     | <i>Quercus rubra</i>       | Northern red oak           | 7.4                                | 1              |   |
|                | 71-69254,                | 1414                       | <i>Populus deltoides</i>   | Eastern cottonwood                 | 23.0           | 1 |
|                |                          | 1415                       | Dead                       |                                    | 16.6           | 3 |
|                | 71-69257                 | 1416                       | <i>Acer platanoides</i>    | Norway maple                       | 9.2            | 1 |
|                |                          | 1417                       | <i>Carya ovata</i>         | Shagbark hickory                   | 9.3            | 1 |
|                |                          | 1418                       | <i>Amelanchier arborea</i> | Downy serviceberry                 | 17.6           | 1 |
| 1419           |                          | <i>Quercus rubra</i>       | Northern red oak           | 30.0                               | 1              |   |
| 1420           |                          | <i>Quercus rubra</i>       | Northern red oak           | 14.1                               | 1              |   |
| 1421           |                          | <i>Populus deltoides</i>   | Eastern cottonwood         | 20.4                               | 1              |   |
| 1422           |                          | <i>Populus deltoides</i>   | Eastern cottonwood         | 15.1                               | 1              |   |
| 1423           |                          | <i>Amelanchier arborea</i> | Downy serviceberry         | 11.6                               | 1              |   |
| 1424           |                          | <i>Tilia americana</i>     | American basswood          | 12.5                               | 1              |   |
| 1425           |                          | <i>Tilia americana</i>     | American basswood          | 14.3, 6.9                          | 1              |   |
| 1426           |                          | <i>Amelanchier arborea</i> | Downy serviceberry         | 14.1                               | 3              |   |
| 1427           |                          | <i>Amelanchier arborea</i> | Downy serviceberry         | 9.1                                | 1              |   |
| 1428           |                          | <i>Acer negundo</i>        | Box-elder                  | 7.2                                | 1              |   |
| 1429           |                          | <i>Tilia americana</i>     | American basswood          | 6.6, 8.0                           | 2              |   |
| 1430           |                          | <i>Populus deltoides</i>   | Eastern cottonwood         | 47.9                               | 1              |   |
| 1431           |                          | <i>Ulmus americana</i>     | American elm               | 7.3                                | 1              |   |
| 1432           |                          | <i>Tilia americana</i>     | American basswood          | 21.3                               | 1              |   |
| 1433           |                          | <i>Tilia americana</i>     | American basswood          | 13.9                               | 1              |   |
| 1434           |                          | <i>Tilia americana</i>     | American basswood          | 8.0                                | 1              |   |
| 1435           |                          | <i>Tilia americana</i>     | American basswood          | 13.4                               | 1              |   |
| 1436           |                          | <i>Tilia americana</i>     | American basswood          | 10.7                               | 1              |   |
| 1437           |                          | <i>Ostrya virginiana</i>   | Eastern hop-hornbeam       | 16.0                               | 1              |   |
| 1438           |                          | <i>Ostrya virginiana</i>   | Eastern hop-hornbeam       | 8.9, 6.1                           | 1              |   |
| 71-70048-70050 |                          | 1439                       | <i>Celtis occidentalis</i> | Hackberry                          | 15             | 1 |
|                |                          | 1440                       | <i>Quercus rubra</i>       | Northern red oak                   | 26.3           | 1 |
|                |                          | 1441                       | <i>Quercus alba</i>        | Northern white oak                 | 8.4            | 1 |
|                |                          | 1442                       | <i>Quercus rubra</i>       | Northern red oak                   | 17.6           | 1 |
|                |                          | 1443                       | <i>Acer saccharum</i>      | Sugar maple                        | 7.3            | 1 |
|                |                          | 1444                       | <i>Quercus rubra</i>       | Northern red oak                   | 16.7, 23.4     | 1 |
|                |                          | 1445                       | <i>Prunus serotina</i>     | Black cherry                       | 6.5            | 1 |
|                | 1446                     | <i>Quercus rubra</i>       | Northern red oak           | 11.1                               | 1              |   |
|                | 1447                     | <i>Tilia americana</i>     | American basswood          | 6.1                                | 1              |   |
|                | 1448                     | <i>Tilia americana</i>     | American basswood          | 10                                 | 1              |   |
|                | 1449                     | <i>Tilia americana</i>     | American basswood          | 6.1                                | 1              |   |
|                | 1450                     | <i>Quercus rubra</i>       | Northern red oak           | 8.4                                | 1              |   |
|                | 1451                     | <i>Quercus rubra</i>       | Northern red oak           | 15.6                               | 1              |   |
|                | 1452                     | <i>Quercus rubra</i>       | Northern red oak           | 12.3                               | 1              |   |
|                | 1453                     | <i>Prunus serotina</i>     | Black cherry               | 8.8                                | 1              |   |
|                | 1454                     | <i>Prunus serotina</i>     | Black cherry               | 10.7                               | 1              |   |
|                | 1455                     | <i>Quercus rubra</i>       | Northern red oak           | 16.1                               | 1              |   |
|                | 1456                     | <i>Quercus rubra</i>       | Northern red oak           | 15.2                               | 1              |   |
|                | 1457                     | <i>Prunus serotina</i>     | Black cherry               | 14.7                               | 1              |   |
|                | 1458                     | <i>Amelanchier arborea</i> | Downy serviceberry         | 14.1                               | 1              |   |
|                | 1459                     | <i>Quercus rubra</i>       | Northern red oak           | 12.6, 16.8                         | 1              |   |
|                | 1460                     | <i>Quercus rubra</i>       | Northern red oak           | 11.1                               | 1              |   |
|                | 1461                     | <i>Quercus rubra</i>       | Northern red oak           | 14.4                               | 1              |   |
|                | 1462                     | <i>Tilia americana</i>     | American basswood          | 6.4                                | 1              |   |
|                | 1463                     | <i>Carya ovata</i>         | Shagbark hickory           | 6.4                                | 2              |   |
| 1464           | <i>Carya ovata</i>       | Shagbark hickory           | 9.7                        | 2                                  |                |   |
| 1465           | <i>Tilia americana</i>   | American basswood          | 16.5                       | 1                                  |                |   |
| 1466           | <i>Ostrya virginiana</i> | Eastern hop-hornbeam       | 7.8, 8.6                   | 1                                  |                |   |
| 71-70047       | 1467                     | <i>Quercus rubra</i>       | Northern red oak           | 38.7                               | 1              |   |
|                | 1468                     | <i>Quercus rubra</i>       | Northern red oak           | 16.5, 17.9                         | 1              |   |
|                | 1469                     | <i>Quercus rubra</i>       | Northern red oak           | 8.0, 3.7                           | 1              |   |
|                | 1470                     | <i>Quercus alba</i>        | Northern white oak         | 14.4                               | 1              |   |
|                | 1471                     | <i>Quercus alba</i>        | Northern white oak         | 7.5                                | 1              |   |
|                | 1472                     | <i>Quercus alba</i>        | Northern white oak         | 10.6                               | 1              |   |
|                | 1473                     | <i>Acer saccharum</i>      | Sugar maple                | 6.0                                | 1              |   |
|                | 1474                     | <i>Quercus rubra</i>       | Northern red oak           | 42.2                               | 2              |   |
|                | 1475                     | <i>Acer saccharum</i>      | Sugar maple                | 7.7                                | 1              |   |
|                | 1476                     | <i>Ostrya virginiana</i>   | Eastern hop-hornbeam       | 5.6                                | 2              |   |
|                | 1477                     | <i>Quercus rubra</i>       | Northern red oak           | 22.7                               | 1              |   |
|                | 1478                     | <i>Quercus rubra</i>       | Northern red oak           | 22.2                               | 3              |   |
|                | 1479                     | <i>Quercus rubra</i>       | Northern red oak           | 20.7                               | 1              |   |
|                | 1480                     | <i>Prunus serotina</i>     | Black cherry               | 6.8                                | 1              |   |
|                | 1481                     | <i>Amelanchier arborea</i> | Downy serviceberry         | 12.8                               | 1              |   |
|                | 1482                     | Dead                       |                            | 13.2                               | 3              |   |
|                | 71-69896                 | 1483                       | <i>Populus deltoides</i>   | Eastern cottonwood                 | 6.9            | 1 |
|                |                          | 1484                       | <i>Populus deltoides</i>   | Eastern cottonwood                 | 7.2            | 1 |
|                |                          | 1485                       | <i>Populus deltoides</i>   | Eastern cottonwood                 | 9.5            | 1 |
|                |                          | 1486                       | <i>Populus deltoides</i>   | Eastern cottonwood                 | 9.4            | 1 |
| 1487           |                          | <i>Pinus strobus</i>       | Eastern white pine         | 21.9                               | 1              |   |
| 1488           |                          | <i>Pinus strobus</i>       | Eastern white pine         | 13.0                               | 1              |   |
| 1489           |                          | <i>Pinus strobus</i>       | Eastern white pine         | 20.1                               | 1              |   |
| 1490           |                          | <i>Pinus strobus</i>       | Eastern white pine         | 15.6                               | 1              |   |
| 1491           |                          | <i>Pinus strobus</i>       | Eastern white pine         | 24.0                               | 1              |   |
| 1492           |                          | <i>Pinus strobus</i>       | Eastern white pine         | 21.5                               | 1              |   |

| Manhole Number | Tree Tag Number        | Scientific Name          | Common Name            | Diameter at Breast Height (inches) | Tree Condition |   |
|----------------|------------------------|--------------------------|------------------------|------------------------------------|----------------|---|
| 71-69896       | 1493                   | <i>Pinus strobus</i>     | Eastern white pine     | 17.4                               | 1              |   |
|                | 1494                   | <i>Pinus strobus</i>     | Eastern white pine     | 17.7                               | 1              |   |
|                | 1495                   | <i>Pinus strobus</i>     | Eastern white pine     | 13.3                               | 2              |   |
|                | 1496                   | <i>Picea abies</i>       | Norway spruce          | 7.9                                | 1              |   |
|                | 1497                   | <i>Picea abies</i>       | Norway spruce          | 21.8                               | 1              |   |
|                | 1498                   | <i>Pinus strobus</i>     | Eastern white pine     | 18.5                               | 1              |   |
|                | 1499                   | <i>Pinus strobus</i>     | Eastern white pine     | 17.9                               | 1              |   |
|                | 1500                   | <i>Picea abies</i>       | Norway spruce          | 18.0                               | 1              |   |
|                | 1510                   | <i>Picea abies</i>       | Norway spruce          | 10.4                               | 1              |   |
|                | 1511                   | <i>Picea abies</i>       | Norway spruce          | 21.6                               | 1              |   |
|                | 1512                   | <i>Picea abies</i>       | Norway spruce          | 13.9                               | 1              |   |
|                | 1513                   | <i>Pinus strobus</i>     | Eastern white pine     | 30.0                               | 1              |   |
|                | 1514                   | <i>Picea abies</i>       | Norway spruce          | 15.6                               | 1              |   |
|                | 1515                   | <i>Picea abies</i>       | Norway spruce          | 22.1                               | 1              |   |
|                | 1516                   | <i>Picea abies</i>       | Norway spruce          | 16.2                               | 1              |   |
|                | 1517                   | <i>Picea abies</i>       | Norway spruce          | 18.2                               | 1              |   |
|                | 1518                   | <i>Pinus strobus</i>     | Eastern white pine     | 19.4                               | 1              |   |
|                | 1519                   | <i>Pinus strobus</i>     | Eastern white pine     | 22.1                               | 1              |   |
|                | 1520                   | <i>Pinus strobus</i>     | Eastern white pine     | 21.2                               | 1              |   |
|                | 1521                   | <i>Pinus strobus</i>     | Eastern white pine     | 18.9                               | 1              |   |
|                | 1522                   | <i>Pinus strobus</i>     | Eastern white pine     | 26.1                               | 1              |   |
|                | 1523                   | <i>Pinus strobus</i>     | Eastern white pine     | 24.8                               | 2              |   |
|                | 1524                   | <i>Pinus strobus</i>     | Eastern white pine     | 27.7                               | 1              |   |
|                | 71-69895               | 1525                     | <i>Quercus rubra</i>   | Northern red oak                   | 26.3           | 1 |
|                |                        | 1526                     | <i>Acer negundo</i>    | Box-elder                          | 16.9           | 1 |
|                |                        | 1527                     | <i>Tilia americana</i> | American basswood                  | 9.7, 7.6, 5.5  | 1 |
|                |                        | 1528                     | <i>Prunus serotina</i> | Black cherry                       | 13.0           | 1 |
|                |                        | 1529                     | <i>Acer negundo</i>    | Box-elder                          | 12.2           | 2 |
|                |                        | 1530                     | <i>Quercus rubra</i>   | Northern red oak                   | 19.9           | 1 |
|                |                        | 1531                     | <i>Prunus serotina</i> | Black cherry                       | 8.4            | 1 |
|                |                        | 1532                     | <i>Prunus serotina</i> | Black cherry                       | 15.1, 14.2     | 1 |
|                |                        | 1533                     | <i>Prunus serotina</i> | Black cherry                       | 9.4            | 1 |
|                |                        | 1534                     | <i>Prunus serotina</i> | Black cherry                       | 8.9            | 1 |
|                |                        | 1535                     | <i>Prunus serotina</i> | Black cherry                       | 8.9            | 1 |
|                |                        | 1536                     | <i>Prunus serotina</i> | Black cherry                       | 9.0            | 1 |
|                |                        | 1537                     | <i>Prunus serotina</i> | Black cherry                       | 11.3           | 1 |
|                |                        | 1538                     | <i>Prunus serotina</i> | Black cherry                       | 13.9           | 1 |
|                |                        | 1539                     | <i>Prunus serotina</i> | Black cherry                       | 13.4           | 1 |
|                |                        | 1540                     | <i>Ulmus americana</i> | American elm                       | 7.1            | 1 |
|                |                        | 1541                     | <i>Prunus serotina</i> | Black cherry                       | 9.0            | 1 |
| 1542           |                        | <i>Prunus serotina</i>   | Black cherry           | 19.6                               | 1              |   |
| 1543           |                        | <i>Prunus serotina</i>   | Black cherry           | 16.2                               | 1              |   |
| 1544           |                        | <i>Prunus serotina</i>   | Black cherry           | 16.0                               | 1              |   |
| 1545           |                        | <i>Prunus serotina</i>   | Black cherry           | 6.5                                | 1              |   |
| 1546           |                        | <i>Prunus serotina</i>   | Black cherry           | 6.8                                | 1              |   |
| 1547           |                        | <i>Prunus serotina</i>   | Black cherry           | 9.8                                | 1              |   |
| 1548           |                        | <i>Prunus serotina</i>   | Black cherry           | 19.0                               | 1              |   |
| 1549           |                        | <i>Prunus serotina</i>   | Black cherry           | 9.1                                | 1              |   |
| 1550           |                        | <i>Prunus serotina</i>   | Black cherry           | 9.1                                | 1              |   |
| 1551           |                        | <i>Prunus serotina</i>   | Black cherry           | 5.9                                | 1              |   |
| 1552           |                        | <i>Prunus serotina</i>   | Black cherry           | 6.0                                | 1              |   |
| 1553           |                        | <i>Quercus rubra</i>     | Northern red oak       | 19.6                               | 1              |   |
| 1554           |                        | <i>Prunus serotina</i>   | Black cherry           | 5.6                                | 1              |   |
| 1555           |                        | <i>Quercus rubra</i>     | Northern red oak       | 34.4                               | 1              |   |
| 1556           |                        | <i>Acer negundo</i>      | Box-elder              | 6.4                                | 1              |   |
| 1557           |                        | <i>Populus deltoides</i> | Eastern cottonwood     | 7.1                                | 1              |   |
| 1558           |                        | <i>Populus deltoides</i> | Eastern cottonwood     | 12.9                               | 1              |   |
| 1559           |                        | <i>Populus deltoides</i> | Eastern cottonwood     | 17.4                               | 1              |   |
| 1560           |                        | <i>Morus alba</i>        | White mulberry         | 6.3                                | 1              |   |
| 1561           |                        | <i>Morus alba</i>        | White mulberry         | 6.0                                | 1              |   |
| 1562           |                        | <i>Populus deltoides</i> | Eastern cottonwood     | 19.1                               | 1              |   |
| 1563           |                        | <i>Ulmus americana</i>   | American elm           | 11.3                               | 1              |   |
| 1564           |                        | <i>Prunus serotina</i>   | Black cherry           | 8.2                                | 1              |   |
| 1565           |                        | <i>Quercus rubra</i>     | Northern red oak       | 7.8                                | 1              |   |
| 1566           |                        | <i>Tilia americana</i>   | American basswood      | 9.0                                | 1              |   |
| 1567           |                        | <i>Prunus serotina</i>   | Black cherry           | 11.4, 6.7                          | 1              |   |
| 1568           |                        | <i>Ulmus americana</i>   | American elm           | 6.6                                | 1              |   |
| 1569           |                        | <i>Prunus serotina</i>   | Black cherry           | 5.5                                | 1              |   |
| 1570           |                        | <i>Quercus rubra</i>     | Northern red oak       | 27.7                               | 1              |   |
| 1571           |                        | <i>Prunus serotina</i>   | Black cherry           | 13.3                               | 1              |   |
| 1572           |                        | <i>Prunus serotina</i>   | Black cherry           | 7.6                                | 1              |   |
| 1573           |                        | <i>Prunus serotina</i>   | Black cherry           | 12.1                               | 1              |   |
| 1574           |                        | <i>Prunus serotina</i>   | Black cherry           | 12.6                               | 1              |   |
| 1575           | <i>Prunus serotina</i> | Black cherry             | 6.2                    | 1                                  |                |   |
| 1576           | <i>Prunus serotina</i> | Black cherry             | 13.0                   | 1                                  |                |   |
| 1577           | <i>Prunus serotina</i> | Black cherry             | 9.4                    | 1                                  |                |   |
| 1578           | <i>Prunus serotina</i> | Black cherry             | 10.0                   | 1                                  |                |   |
| 1579           | <i>Prunus serotina</i> | Black cherry             | 12.2                   | 1                                  |                |   |
| 1580           | <i>Prunus serotina</i> | Black cherry             | 7.5                    | 1                                  |                |   |
| 1581           | <i>Prunus serotina</i> | Black cherry             | 6.6                    | 1                                  |                |   |
| 1582           | <i>Quercus rubra</i>   | Northern red oak         | 26.9                   | 1                                  |                |   |
| 1583           | <i>Prunus serotina</i> | Black cherry             | 13.1                   | 1                                  |                |   |
| 1584           | <i>Prunus serotina</i> | Black cherry             | 9.0                    | 1                                  |                |   |
| 1585           | <i>Prunus serotina</i> | Black cherry             | 7.3                    | 1                                  |                |   |

| Manhole Number | Tree Tag Number          | Scientific Name           | Common Name                   | Diameter at Breast Height (inches) | Tree Condition |   |
|----------------|--------------------------|---------------------------|-------------------------------|------------------------------------|----------------|---|
| 71-69895       | 1586                     | <i>Prunus serotina</i>    | Black cherry                  | 11.5                               | 1              |   |
|                | 1587                     | <i>Prunus serotina</i>    | Black cherry                  | 10.1                               | 1              |   |
|                | 1588                     | <i>Prunus serotina</i>    | Black cherry                  | 7.6                                | 1              |   |
|                | 1589                     | <i>Prunus serotina</i>    | Black cherry                  | 11.3                               | 1              |   |
|                | 1590                     | <i>Prunus serotina</i>    | Black cherry                  | 12.2, 10.7                         | 1              |   |
|                | 1591                     | <i>Acer negundo</i>       | Box-elder                     | 12.9                               | 1              |   |
|                | 1592                     | <i>Ulmus americana</i>    | American elm                  | 9.4                                | 1              |   |
|                | 1593                     | <i>Acer saccharinum</i>   | Silver maple                  | 25.5                               | 1              |   |
|                | Siphon                   | 923                       | <i>Carya ovata</i>            | Shagbark hickory                   | 14.7           | 3 |
|                |                          | 1594                      | <i>Betula nigra</i>           | River birch                        | 8.9, 8.6, 7.5  | 1 |
|                |                          | 925                       | <i>Fraxinus americana</i>     | White ash                          | 18.6           | 3 |
|                |                          | 926                       | <i>Fraxinus pennsylvanica</i> | Green ash                          | 15.4           | 3 |
|                |                          | 927                       | <i>Acer negundo</i>           | Box-elder                          | 7.2            | 2 |
|                |                          | 928                       | <i>Populus deltoides</i>      | Eastern cottonwood                 | 12.3           | 2 |
|                |                          | 929                       | <i>Fraxinus americana</i>     | White ash                          | 9.3            | 3 |
|                |                          | 930                       | <i>Fraxinus americana</i>     | White ash                          | 6.6            | 3 |
|                |                          | 931                       | <i>Carya ovata</i>            | Shagbark hickory                   | 13.8           | 1 |
|                |                          | 932                       | <i>Carya ovata</i>            | Shagbark hickory                   | 13.5           | 1 |
|                |                          | 933                       | <i>Carya ovata</i>            | Shagbark hickory                   | 12.3           | 1 |
|                |                          | 934                       | <i>Betula nigra</i>           | River birch                        | 10.1           | 1 |
| 935            |                          | <i>Quercus rubra</i>      | Northern red oak              | 30.2                               | 1              |   |
| 936            |                          | <i>Acer negundo</i>       | Box-elder                     | 14.1                               | 1              |   |
| 937            |                          | <i>Fraxinus americana</i> | White ash                     | 7.7                                | 3              |   |
| 938            |                          | <i>Carya ovata</i>        | Shagbark hickory              | 6.6                                | 1              |   |
| 939            |                          | <i>Carya ovata</i>        | Shagbark hickory              | 13.1                               | 1              |   |
| 940            |                          | <i>Carya ovata</i>        | Shagbark hickory              | 8.7                                | 1              |   |
| 941            |                          | <i>Carya ovata</i>        | Shagbark hickory              | 14.7                               | 1              |   |
| 942            |                          | <i>Carya ovata</i>        | Shagbark hickory              | 7.7                                | 1              |   |
| 944            |                          | <i>Quercus rubra</i>      | Northern red oak              | 13.9                               | 1              |   |
| 945            |                          | <i>Tilia americana</i>    | American basswood             | 7.8                                | 1              |   |
| 946            |                          | <i>Carya ovata</i>        | Shagbark hickory              | 10.4                               | 1              |   |
| 947            |                          | <i>Quercus rubra</i>      | Northern red oak              | 25.0                               | 1              |   |
| 948            |                          | <i>Prunus serotina</i>    | Black cherry                  | 19.8                               | 1              |   |
| 949            |                          | <i>Tilia americana</i>    | American basswood             | 8.0                                | 1              |   |
| 950            |                          | <i>Carya ovata</i>        | Shagbark hickory              | 13.1                               | 1              |   |
| 951            |                          | <i>Quercus rubra</i>      | Northern white oak            | 11.7, 8.7                          | 1              |   |
| 952            |                          | <i>Quercus alba</i>       | Northern white oak            | 7.1                                | 1              |   |
| 953            |                          | <i>Quercus alba</i>       | Northern white oak            | 12.0                               | 1              |   |
| 954            | <i>Quercus alba</i>      | Northern white oak        | 9.9                           | 1                                  |                |   |
| 955            | <i>Quercus alba</i>      | Northern white oak        | 10.6                          | 1                                  |                |   |
| 956            | <i>Quercus rubra</i>     | Northern red oak          | 23.0                          | 1                                  |                |   |
| 957            | <i>Quercus alba</i>      | Northern white oak        | 6.7                           | 1                                  |                |   |
| 958            | <i>Quercus rubra</i>     | Northern red oak          | 12.9                          | 1                                  |                |   |
| 959            | <i>Quercus rubra</i>     | Northern red oak          | 14.0                          | 1                                  |                |   |
| 960            | <i>Quercus rubra</i>     | Northern red oak          | 11.0                          | 2                                  |                |   |
| 961            | <i>Carya ovata</i>       | Shagbark hickory          | 16.8                          | 1                                  |                |   |
| 962            | <i>Carya ovata</i>       | Shagbark hickory          | 6.0                           | 1                                  |                |   |
| 963            | <i>Ostrya virginiana</i> | Eastern hop-hornbeam      | 7.1                           | 1                                  |                |   |
| 964            | <i>Ostrya virginiana</i> | Eastern hop-hornbeam      | 7.5                           | 1                                  |                |   |
| 965            | <i>Quercus alba</i>      | Northern white oak        | 6.1                           | 1                                  |                |   |
| 966            | <i>Quercus rubra</i>     | Northern red oak          | 20.6                          | 1                                  |                |   |
| 967            | <i>Quercus rubra</i>     | Northern red oak          | 19.4                          | 1                                  |                |   |
| 968            | <i>Quercus rubra</i>     | Northern red oak          | 21.1                          | 1                                  |                |   |
| 969            | <i>Quercus rubra</i>     | Northern red oak          | 22.2                          | 1                                  |                |   |
| 970            | <i>Quercus alba</i>      | Northern white oak        | 8.3                           | 1                                  |                |   |
| 971            | <i>Quercus alba</i>      | Northern white oak        | 6.4                           | 1                                  |                |   |
| 972            | <i>Quercus alba</i>      | Northern white oak        | 7.2                           | 1                                  |                |   |
| 973            | <i>Quercus rubra</i>     | Northern red oak          | 13.1, 15.7                    | 1                                  |                |   |
| 974            | <i>Carya ovata</i>       | Shagbark hickory          | 11.0, 7.3                     | 1/3                                |                |   |
| 975            | <i>Quercus alba</i>      | Northern white oak        | 13.9                          | 1                                  |                |   |
| 976            | <i>Quercus rubra</i>     | Northern red oak          | 14.2                          | 1                                  |                |   |
| 977            | <i>Quercus alba</i>      | Northern white oak        | 17.3                          | 1                                  |                |   |
| 978            | <i>Quercus rubra</i>     | Northern red oak          | 19.3                          | 1                                  |                |   |
| 979            | <i>Ostrya virginiana</i> |                           |                               |                                    |                |   |

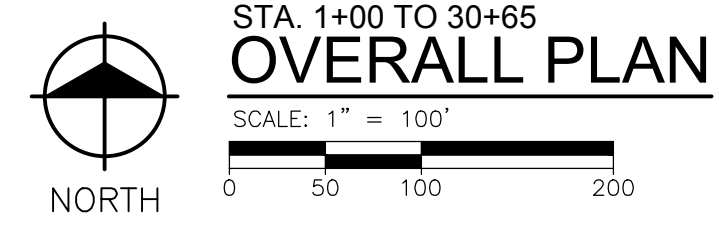


**BENCH MARKS**

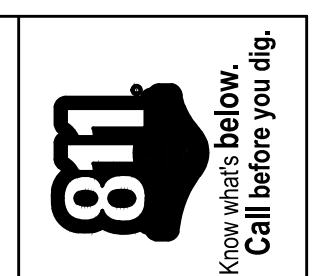
|  |              |
|--|--------------|
| BM A   | ELEV. 764.12 |
| CHISELED SQUARE ON WEST SIDE OF CONCRETE BASE FOR METAL LIGHT POLE "F09R005", EAST SIDE OF NICHOLS ROAD        |              |
| BM B   | ELEV. 763.84 |
| CHISELED SQUARE ON WEST SIDE OF CONCRETE BASE FOR METAL LIGHT POLE "F09R003", EAST SIDE OF NICHOLS ROAD        |              |
| BM C   | ELEV. 765.50 |
| CHISELED SQUARE ON SW CORNER OF HEADWALL, NORTH SIDE OF ARBORETUM ROAD   |              |
| BM D   | ELEV. 760.76 |
| MAG NAIL IN SOUTH SIDE OF 12" DECIDUOUS TREE, NORTH SIDE OF ARBORETUM ROAD AT CULVERT CROSSING                 |              |
| BM E   | ELEV. 764.37 |
| CHISELED X ON TOP OF NE BOLT FOR CALL BOX BASE, EAST SIDE OF PATH AT INTERSECTION 7                            |              |
| BM F   | ELEV. 760.53 |
| CHISELED X ON TOP OF SE BOLT FOR METAL LIGHT POLE, NORTH SIDE OF ARBORETUM ROAD AT WEST SIDE OF INTERSECTION 6 |              |

**NOTES**


- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.



STA. 1+00 TO 30+65  
**OVERALL PLAN**



| REV. | DATE       | DRAWN | CHECKED | DESCRIPTION    |
|------|------------|-------|---------|----------------|
|      | 10-18-2016 |       |         | ISSUED FOR BID |

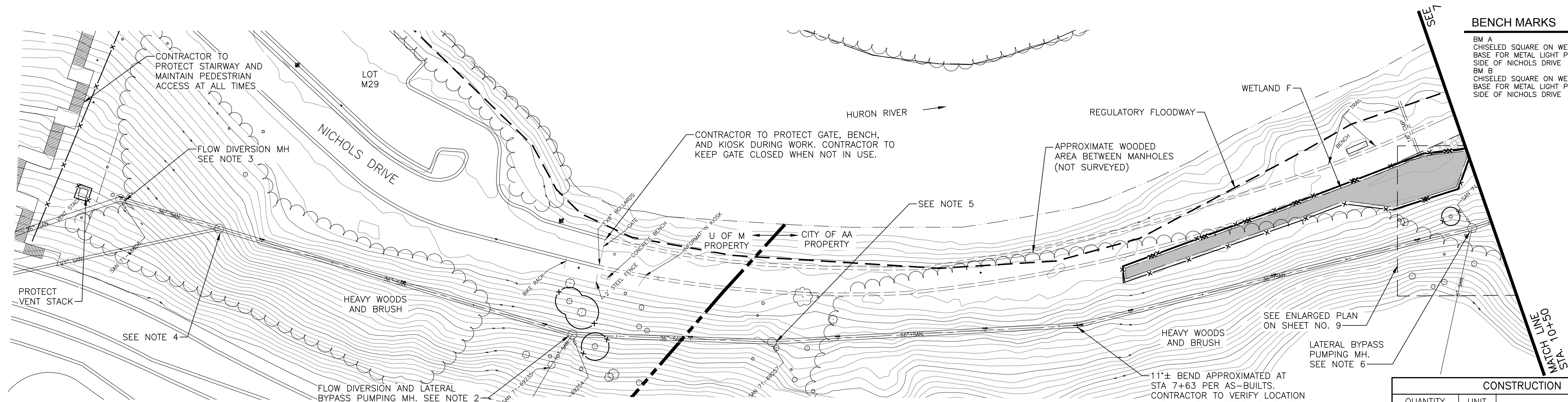


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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
OVERALL PLAN

|           |             |
|-----------|-------------|
| SHEET No. | DRAWING No. |
| 5 OF 34   | 2016-026-P1 |

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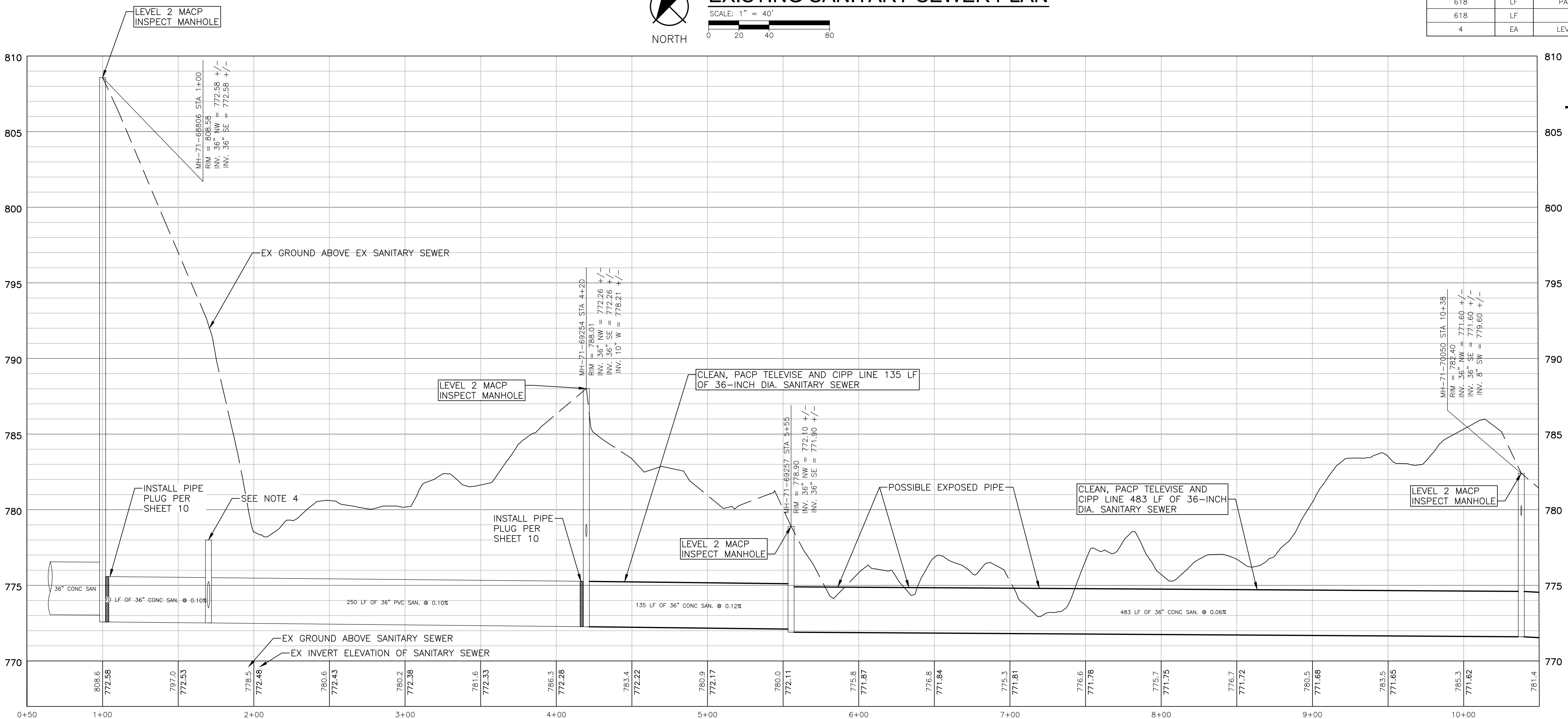
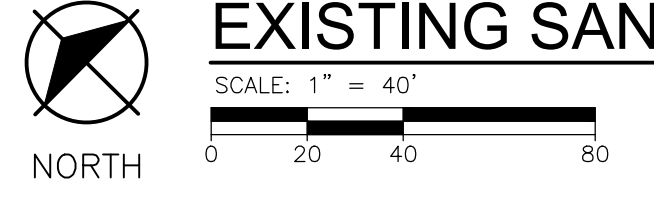
**BENCH MARKS**

|  |              |
|--|--------------|
| BM A   | ELEV. 764.12 |
| CHISELED SQUARE ON WEST SIDE OF CONCRETE BASE FOR METAL LIGHT POLE "F09R005", EAST SIDE OF NICHOLS DRIVE |              |
| BM B   | ELEV. 763.84 |
| CHISELED SQUARE ON WEST SIDE OF CONCRETE BASE FOR METAL LIGHT POLE "F09R003", EAST SIDE OF NICHOLS DRIVE |              |

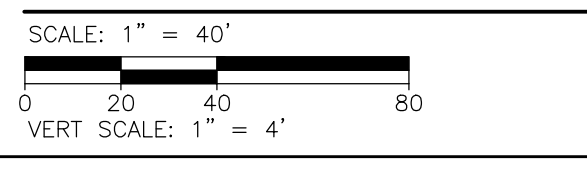
**CONSTRUCTION QUANTITIES**

| QUANTITY | UNIT | DESCRIPTION                               |
|----------|------|---|
| 618      | LF   | CLEAN 36-INCH DIA. SANITARY SEWER         |
| 618      | LF   | PACP TELEWISE 36-INCH DIA. SANITARY SEWER |
| 618      | LF   | CIPP LINE 36-INCH DIA. SANITARY SEWER     |
| 4        | EA   | LEVEL 2 MACP INSPECT MANHOLE OR CHAMBER   |

**STA. 1+00 TO 10+50  
EXISTING SANITARY SEWER PLAN**



**STA. 1+00 TO 10+50  
EXISTING SANITARY SEWER PROFILE**



**NOTES**

- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
- CONTRACTOR IS PERMITTED TO ACCESS MANHOLE 71-89254 FOR SETUP OF FLOW DIVERSION/LATERAL BYPASS PUMPING, INSPECTION, AND LINER CUTTING PURPOSES ONLY. MANHOLE SHALL NOT BE USED FOR CLEANING, TELEVISIONING, OR LINING. MANHOLE FRAME AND COVER SHALL NOT BE REMOVED. WORK AT MANHOLE, AND ASSOCIATED LIMITED SITE CLEARING, WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- CONTRACTOR IS PERMITTED TO ACCESS MANHOLE MH 71-68806 FOR FLOW DIVERSION, INSPECTION, AND LINER CUTTING PURPOSES ONLY. MANHOLE SHALL NOT BE USED FOR CLEANING, TELEVISIONING, OR LINING. MANHOLE FRAME AND COVER SHALL NOT BE REMOVED. WORK AT MANHOLE, AND ASSOCIATED LIMITED SITE CLEARING, WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- MANHOLE BELIEVED TO BE BURIED AND INACCESSIBLE. APPROXIMATE LOCATION OF MANHOLE AND ELEVATIONS SHOWN ARE BASED ON RECORD DRAWINGS. CONTRACTOR SHALL NOT EXCAVATE MANHOLE TO USE IT FOR CLEANING, TELEVISIONING, OR LINING.
- CONTRACTOR IS PERMITTED TO ACCESS MANHOLE MH-71-69257 FOR INSPECTION AND LINER CUTTING ONLY. MANHOLE SHALL NOT BE USED FOR CLEANING, TELEVISIONING, OR LINING. MANHOLE FRAME AND COVER SHALL NOT BE REMOVED. NO CLEARING OF SITE AROUND MANHOLE IS PERMITTED. WORK AT MANHOLE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
- CONTRACTOR IS PERMITTED TO ACCESS MANHOLE MH 71-70050 FOR LATERAL BYPASS PUMPING, INSPECTION, AND LINER CUTTING PURPOSES ONLY. MANHOLE SHALL NOT BE USED FOR CLEANING, TELEVISIONING, OR LINING. MANHOLE FRAME AND COVER SHALL NOT BE REMOVED. WORK AT MANHOLE, AND ASSOCIATED LIMITED SITE CLEARING, WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

| REV. | DESCRIPTION    | DATE       | DRAWN | CHECKED |
|------|----------------|------------|-------|---------|
|      | ISSUED FOR BID | 10-18-2016 |       |         |

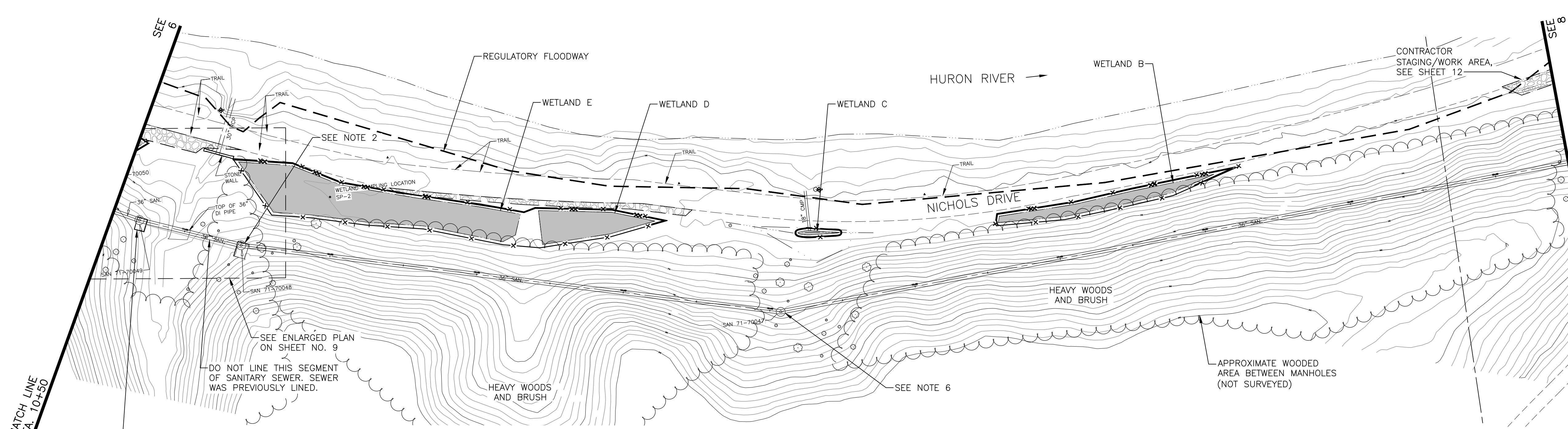
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NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
PLAN AND PROFILE - STA. 1+00 TO 10+50

SCALE PLAN: 1" = 40'  
DRAWING No. 2016-026-PP1

SHEET No. **6 OF 34**

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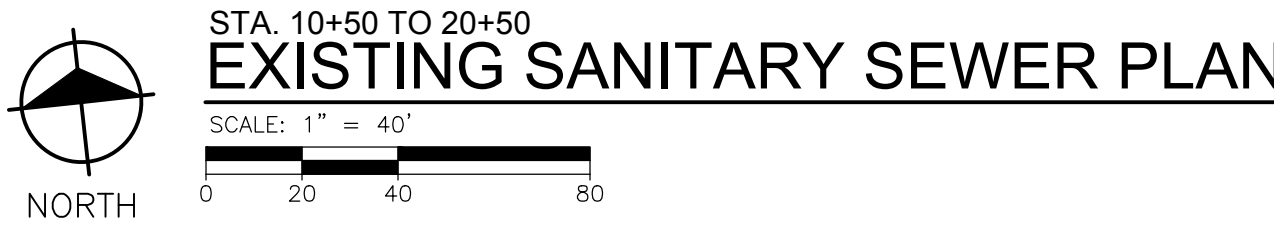


**BENCH MARKS**

|   |              |
|---|--------------|
| BM C  | ELEV. 765.50 |
| CHISELED SQUARE ON SW CORNER OF HEADWALL,<br>NORTH SIDE OF ARBORETUM ROAD                         |              |
| BM D  | ELEV. 760.76 |
| MAG NAIL IN SOUTH SIDE OF 12" DECIDUOUS TREE,<br>NORTH SIDE OF ARBORETUM ROAD AT CULVERT CROSSING |              |

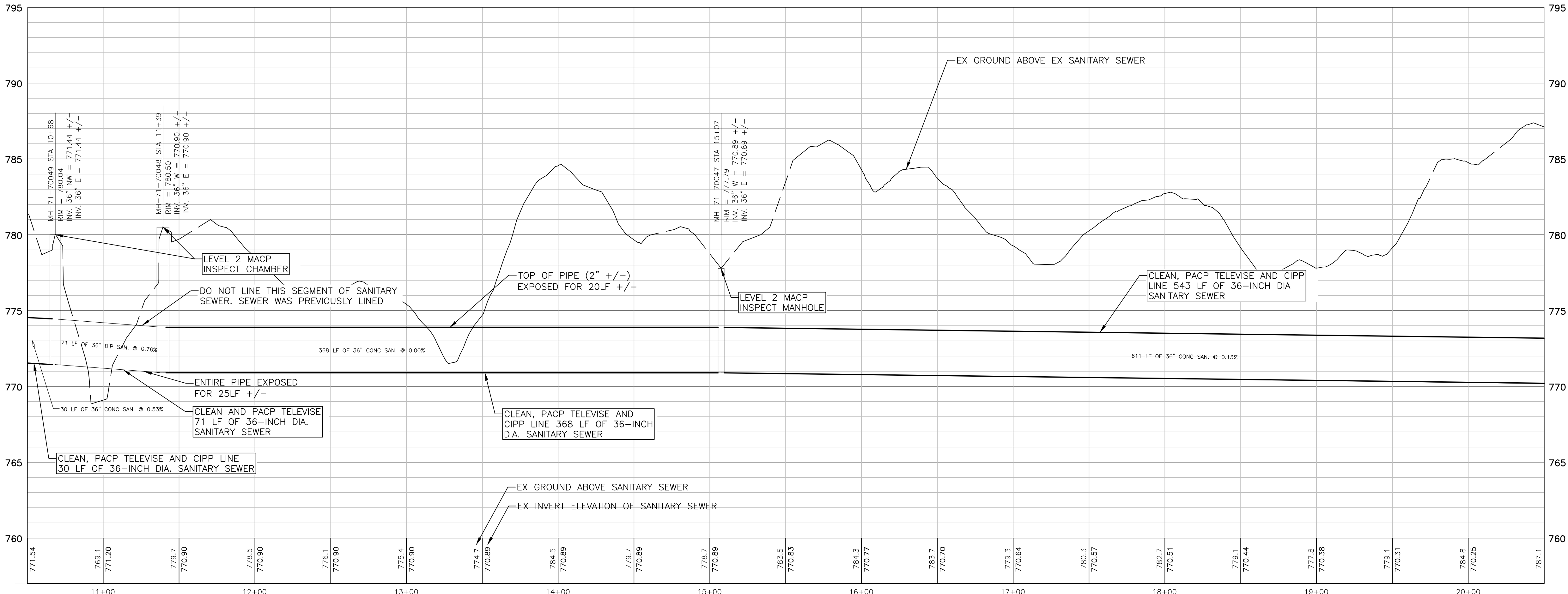
- NOTES**
- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
  - CONTRACTOR IS PERMITTED TO ACCESS MANHOLE MH-71-70048 FOR INSPECTION AND LINER CUTTING ONLY. MANHOLE SHALL NOT BE USED FOR CLEANING, TELEVISIONING, OR LINING. MANHOLE FRAME AND COVER SHALL NOT BE REMOVED. NO CLEARING OF SITE AROUND MANHOLE IS PERMITTED. WORK AT MANHOLE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
  - CONTRACTOR IS PERMITTED TO USE MANHOLE 71-70049 FOR CLEANING, TELEVISIONING AND INSPECTION PURPOSES. THIS MANHOLE IS THE ONLY MANHOLE TO BE USED FOR LINING ACCESS AND OPERATIONS. CONTRACTOR SHALL REMOVE CHAMBER ROOF SLAB TO PERFORM WORK AND REPLACE WITH NEW ROOF SLAB PER DETAIL ON SHEET 19. CONTRACTOR SHALL SECURE OPENING IN CHAMBER DURING NON-WORKING HOURS UNTIL NEW ROOF SLAB IS INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DESCRIBED IN NOTE 6 ON SHEET 2.
  - CONTRACTOR IS PERMITTED TO ACCESS MANHOLE MH-71-70047 FOR INSPECTION AND LINER CUTTING ONLY. MANHOLE SHALL NOT BE USED FOR CLEANING, TELEVISIONING, OR LINING. MANHOLE FRAME AND COVER SHALL NOT BE REMOVED. NO CLEARING OF SITE AROUND MANHOLE IS PERMITTED. WORK AT MANHOLE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

REMOVAL AND REPLACEMENT OF CHAMBER ROOF SLAB - MH 71-70049  
SEE NOTE 3



**CONSTRUCTION QUANTITIES**

| QUANTITY | UNIT | DESCRIPTION  |
|----------|------|--|
| 1012     | LF   | CLEAN 36-INCH DIA. SANITARY SEWER                          |
| 1012     | LF   | PACP TELEWISE 36-INCH DIA. SANITARY SEWER                  |
| 941      | LF   | CIPP LINE 36-INCH DIA. SANITARY SEWER                      |
| 3        | EA   | LEVEL 2 MACP INSPECT MANHOLE OR CHAMBER                    |
| 1        | LS   | REMOVAL AND REPLACEMENT OF CHAMBER ROOF SLAB - MH 71-70049 |



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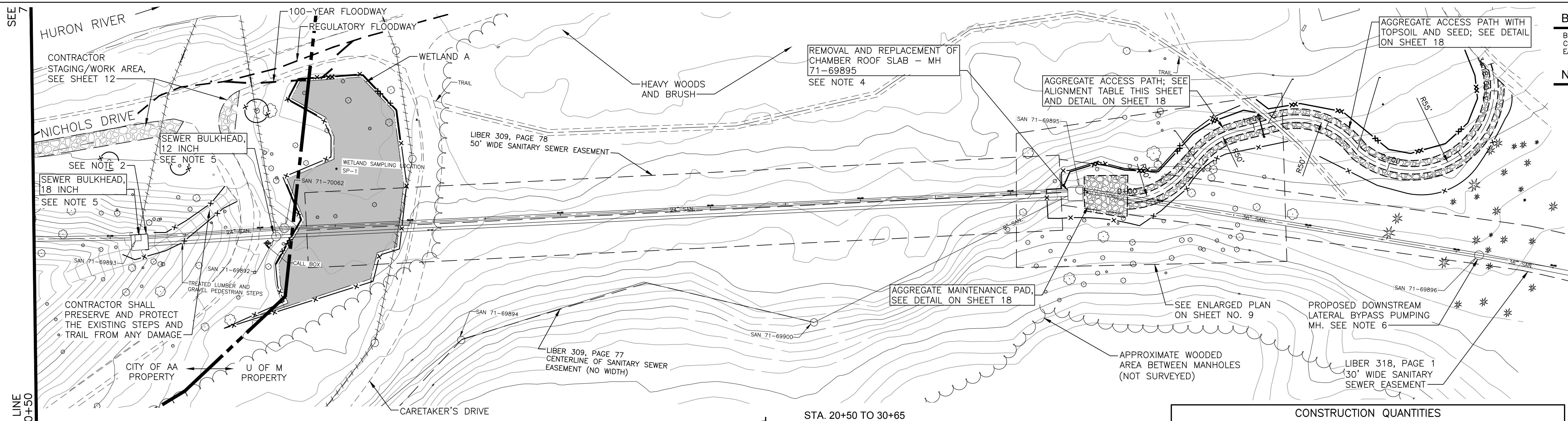
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NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
PLAN AND PROFILE - STA. 10+50 TO 20+50

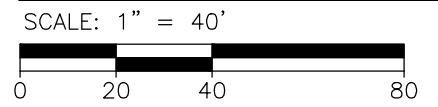
SCALE PLAN: 1" = 40'  
DRAWING No. 2016-026-PP2

SHEET No. **7 OF 34**

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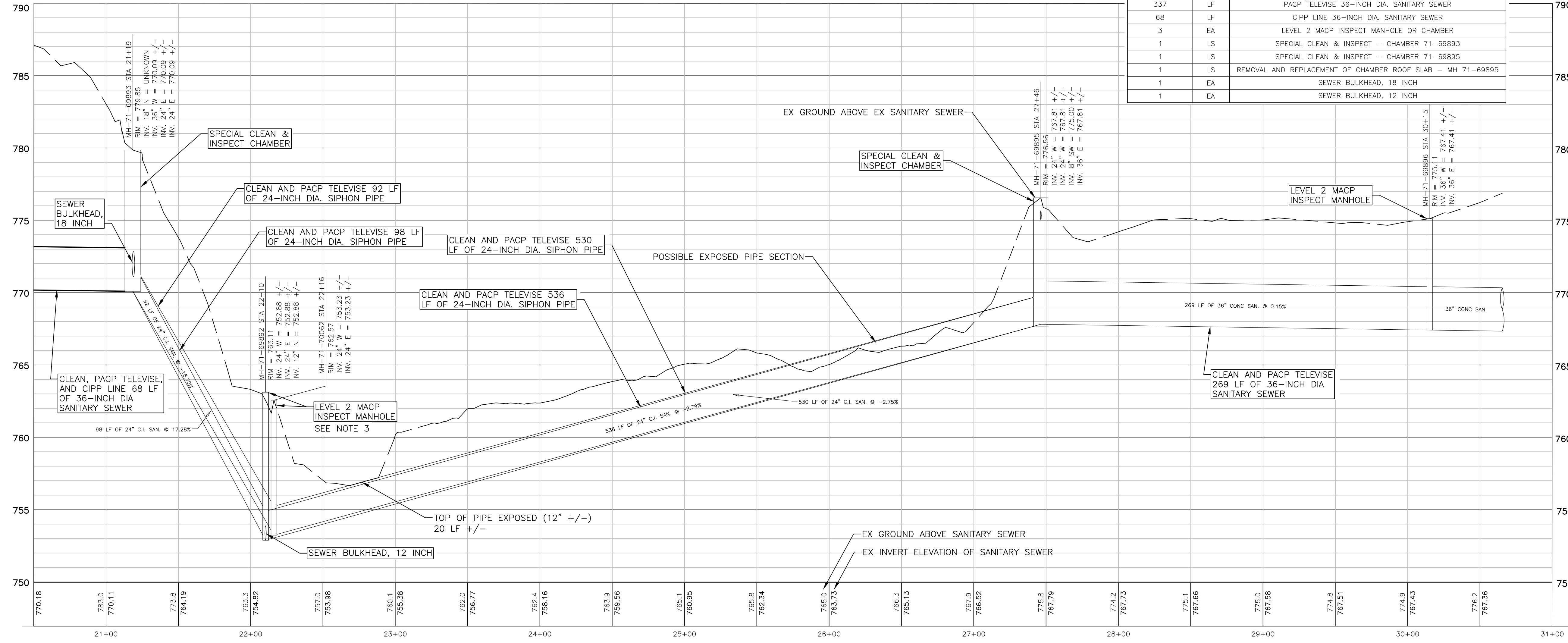
STA. 20+50 TO 30+65  
**EXISTING SANITARY SEWER PLAN**



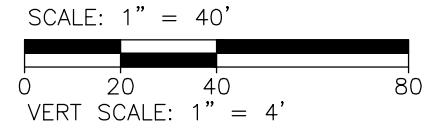
| CONSTRUCTION QUANTITIES |      |  |
|-------------------------|------|--|
| QUANTITY                | UNIT | DESCRIPTION  |
| 1,256                   | LF   | CLEAN 24-INCH DIA. SIPHON PIPE                             |
| 1,256                   | LF   | PACP TELEVISE 24-INCH DIA. SIPHON PIPE                     |
| 337                     | LF   | CLEAN 36-INCH DIA. SANITARY SEWER                          |
| 337                     | LF   | PACP TELEVISE 36-INCH DIA. SANITARY SEWER                  |
| 68                      | LF   | CIPP LINE 36-INCH DIA. SANITARY SEWER                      |
| 3                       | EA   | LEVEL 2 MACP INSPECT MANHOLE OR CHAMBER                    |
| 1                       | LS   | SPECIAL CLEAN & INSPECT - CHAMBER 71-69893                 |
| 1                       | LS   | SPECIAL CLEAN & INSPECT - CHAMBER 71-69895                 |
| 1                       | LS   | REMOVAL AND REPLACEMENT OF CHAMBER ROOF SLAB - MH 71-69895 |
| 1                       | EA   | SEWER BULKHEAD, 18 INCH                                    |
| 1                       | EA   | SEWER BULKHEAD, 12 INCH                                    |


- BENCH MARKS**
- BM E ELEV. 764.37  
CHISELED X ON TOP OF NE BOLT FOR CALL BOX BASE,  
EAST SIDE OF PATH AT INTERSECTION 7
- NOTES**
- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
  - CONTRACTOR IS PERMITTED TO ACCESS CHAMBER 71-69893 FOR CLEANING AND TELEVISION. RECORD DRAWINGS OF CHAMBER ARE NOT AVAILABLE. CONTRACTOR IS TO ENTER CHAMBER, CLEAN AND REMOVE ALL DEBRIS AND CORRODED GATES/OPERATORS, AND PROVIDE MIOSHA-APPROVED ACCESS TO ENGINEER TO ENTER TO PERFORM STRUCTURAL INSPECTION IN ACCORDANCE WITH THE SPECIFICATIONS.
  - CONTRACTOR IS PERMITTED TO USE BOTH SIPHON MANHOLES 71-69892 AND 71-70062 FOR CLEANING AND TELEVISION ACCESS ONLY. SEE DETAIL ON SHEET 17.
  - CONTRACTOR IS PERMITTED TO USE CHAMBER 71-69895 FOR CLEANING AND TELEVISION ACCESS AND SERVICE LEAD BYPASS PUMPING/FLOW DIVERSION. RECORD DRAWINGS OF CHAMBER ARE NOT AVAILABLE. CONTRACTOR SHALL REMOVE AND REPLACE CHAMBER ROOF SLAB PER DETAIL ON SHEET 19. CLEAN AND REMOVE ALL DEBRIS AND MISCELLANEOUS OBJECTS, AND PROVIDE ACCESS TO ENGINEER TO ENTER TO PERFORM STRUCTURAL INSPECTION IN ACCORDANCE WITH THE SPECIFICATIONS. CONTRACTOR SHALL SECURE OPENING IN CHAMBER DURING NON-WORKING HOURS UNTIL NEW ROOF SLAB IS INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DESCRIBED IN NOTE 6 ON SHEET 2.
  - BULKHEAD OVERFLOWS IN MH 71-69893 AND 71-69892 PRIOR TO PERFORMING CLEANING OF SIPHON PIPES AND CHAMBER.
  - CONTRACTOR IS PERMITTED TO ACCESS MANHOLE MH-71-69896 FOR CLEANING, INSPECTION, AND LATERAL BYPASS PUMPING ONLY. MANHOLE SHALL NOT BE USED FOR LINING. MANHOLE FRAME AND COVER SHALL NOT BE REMOVED. NO CLEARING OF SITE AROUND MANHOLE IS PERMITTED. WORK AT MANHOLE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

| AGGREGATE ACCESS PATH ALIGNMENT |         |
|---------------------------------|---------|
| LABEL                           | STATION |
| POB                             | 0+00.00 |
| PT                              | 0+40.08 |
| PC                              | 0+58.80 |
| PT                              | 0+88.03 |
| PC                              | 1+16.28 |
| PT                              | 1+72.41 |
| PC                              | 1+77.65 |
| POE                             | 3+18.14 |



STA. 20+50 TO 30+65  
**EXISTING SANITARY SEWER PROFILE**





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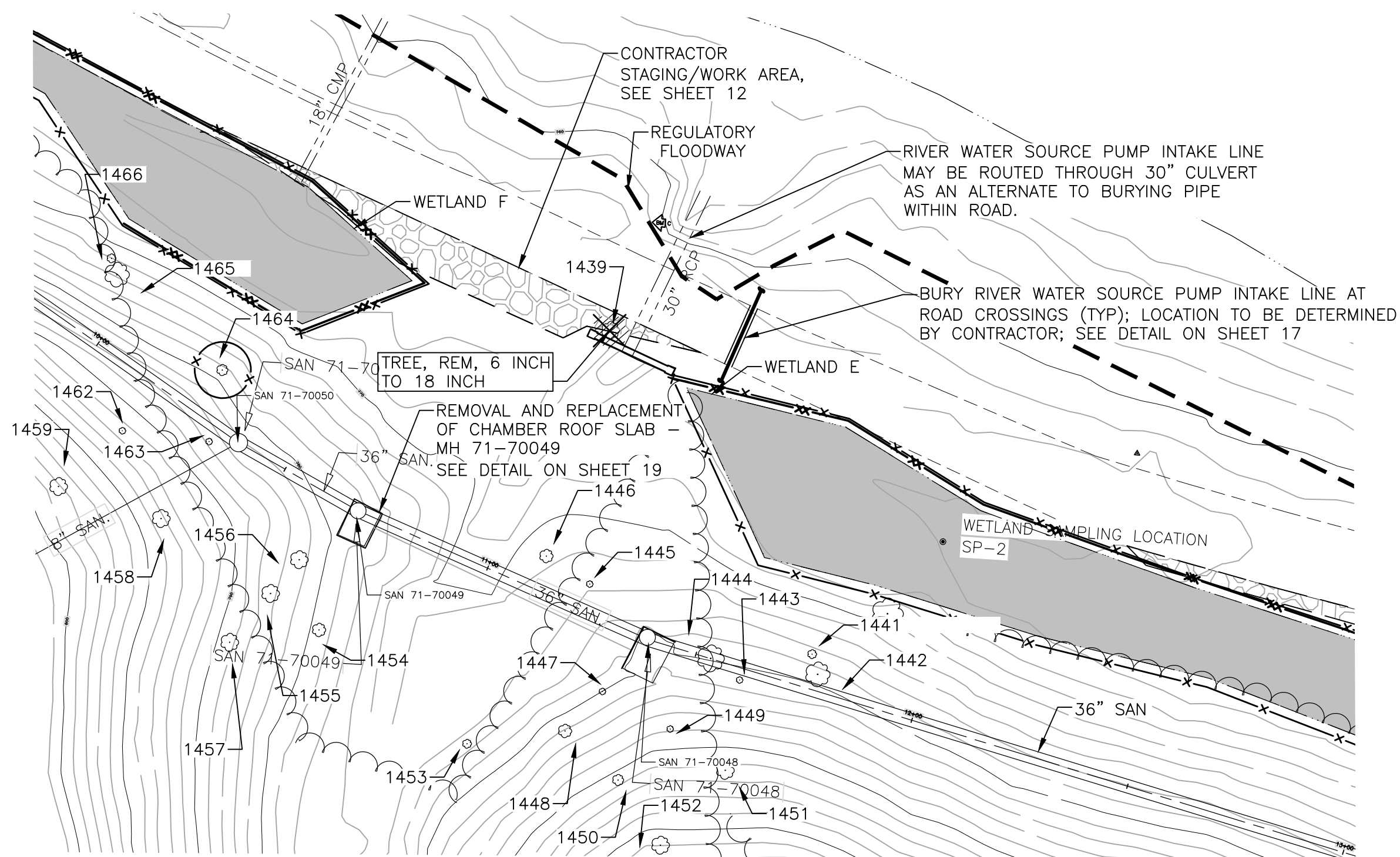
**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
PLAN AND PROFILE - STA. 20+50 TO 30+65

SCALE PLAN: 1" = 40'  
DRAWING No. 2016-026-PP3

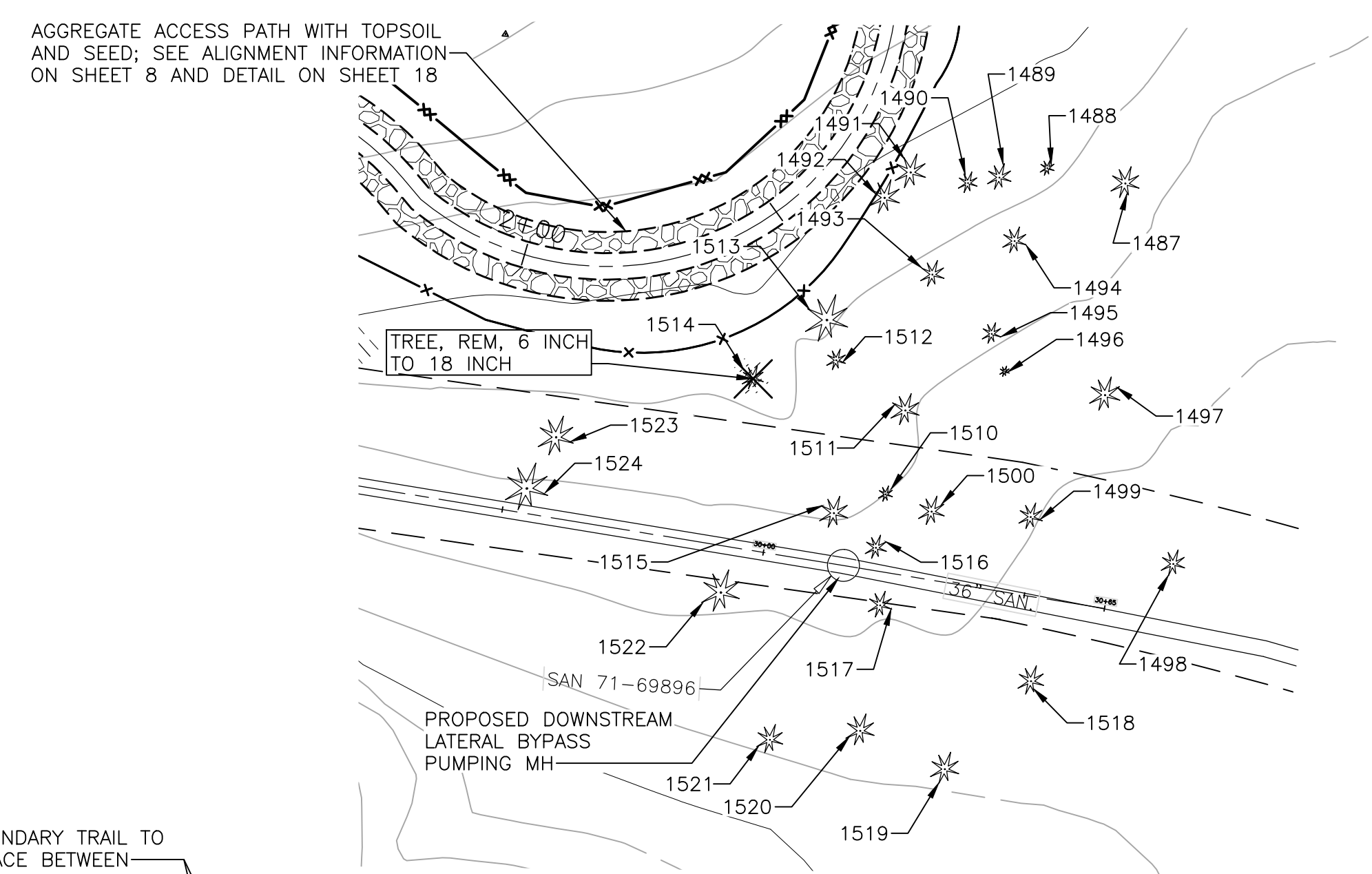
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| 8 OF 34   |                | 10-18-2016 |       |         |



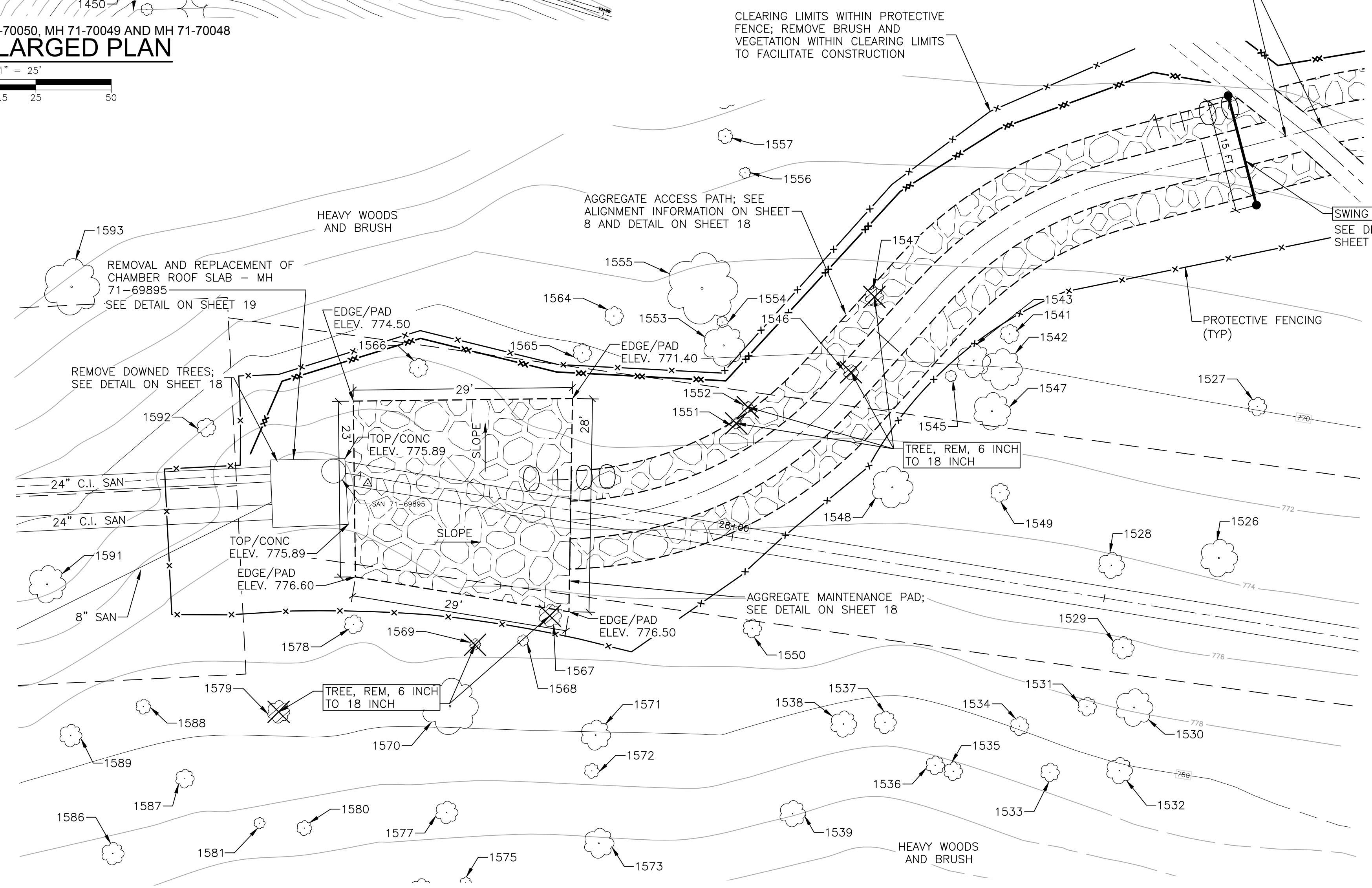
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MH 71-70050, MH 71-70049 AND MH 71-70048  
**ENLARGED PLAN**  
 SCALE: 1" = 25'



MH 71-69896  
**ENLARGED PLAN**  
 SCALE: 1" = 25'




MH 71-69895  
**ENLARGED PLAN**  
 SCALE: 1" = 10'

| CONSTRUCTION QUANTITIES |      |                              |
|-------------------------|------|------------------------------|
| QUANTITY                | UNIT | DESCRIPTION                  |
| 9                       | EA   | TREE, REM. 6 INCH TO 18 INCH |
| 1                       | EA   | SWING GATE                   |

REFER TO SHEET 18 FOR AGGREGATE ACCESS PATH AND MAINTENANCE PAD QUANTITIES. REFER TO SHEET 22 FOR PROTECTIVE FENCING QUANTITIES


**NOTES**

- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
- EARTHWORK REQUIRED TO CONSTRUCT THE AGGREGATE ACCESS PATHS AND MAINTENANCE PAD, INCLUDING TOP SOIL REMOVAL, EXCAVATION, EMBANKMENT, GRADING AND SOIL COMPACTION, SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS".



Know what's below.  
Call before you dig.

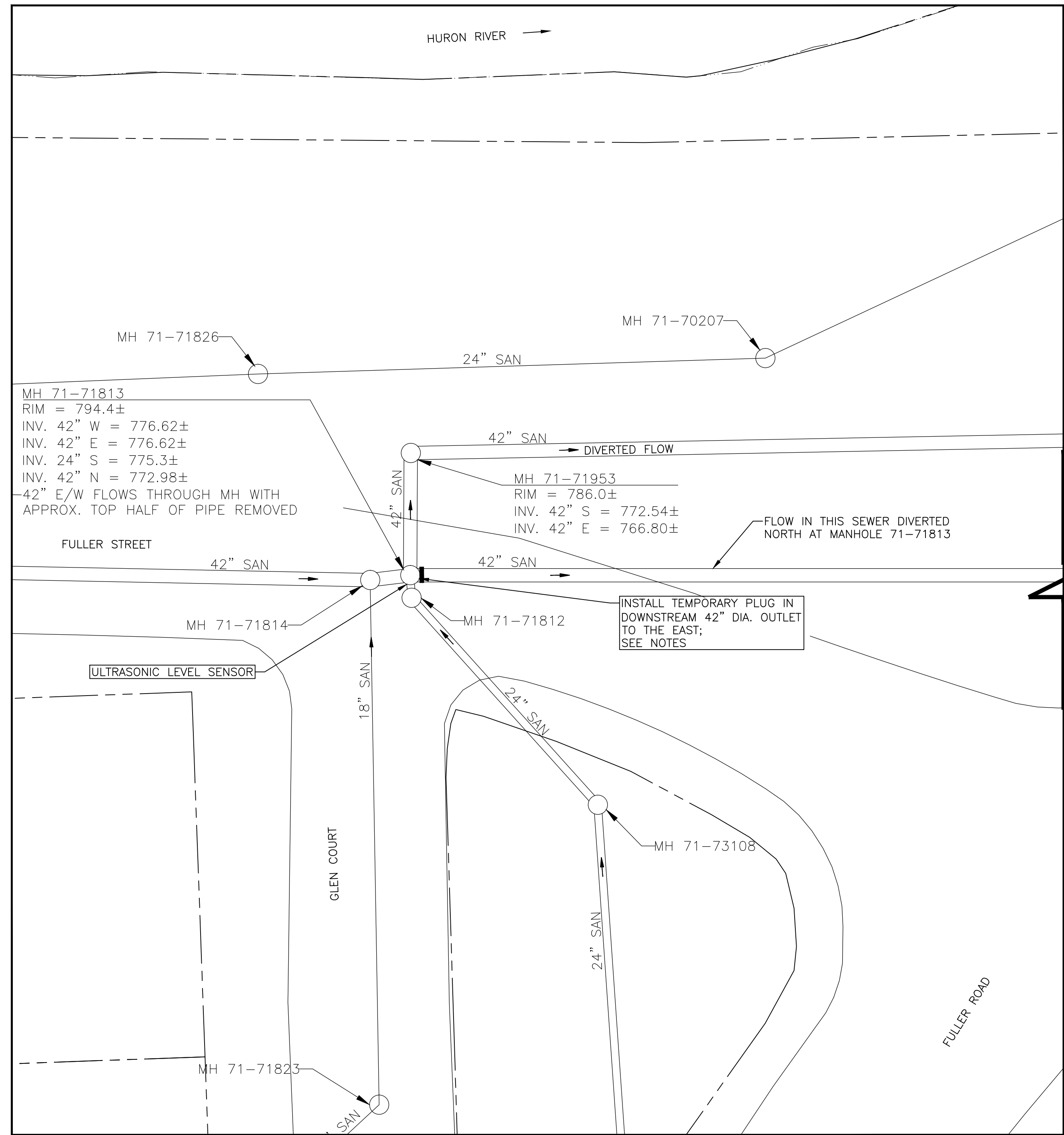
| REV. | DESCRIPTION | DATE       | DRAWN | CHECKED |
|------|-------------|------------|-------|---------|
|      |             |            |       |         |
|      |             | 10-18-2016 |       |         |



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 NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
 ENLARGED SITE PLANS

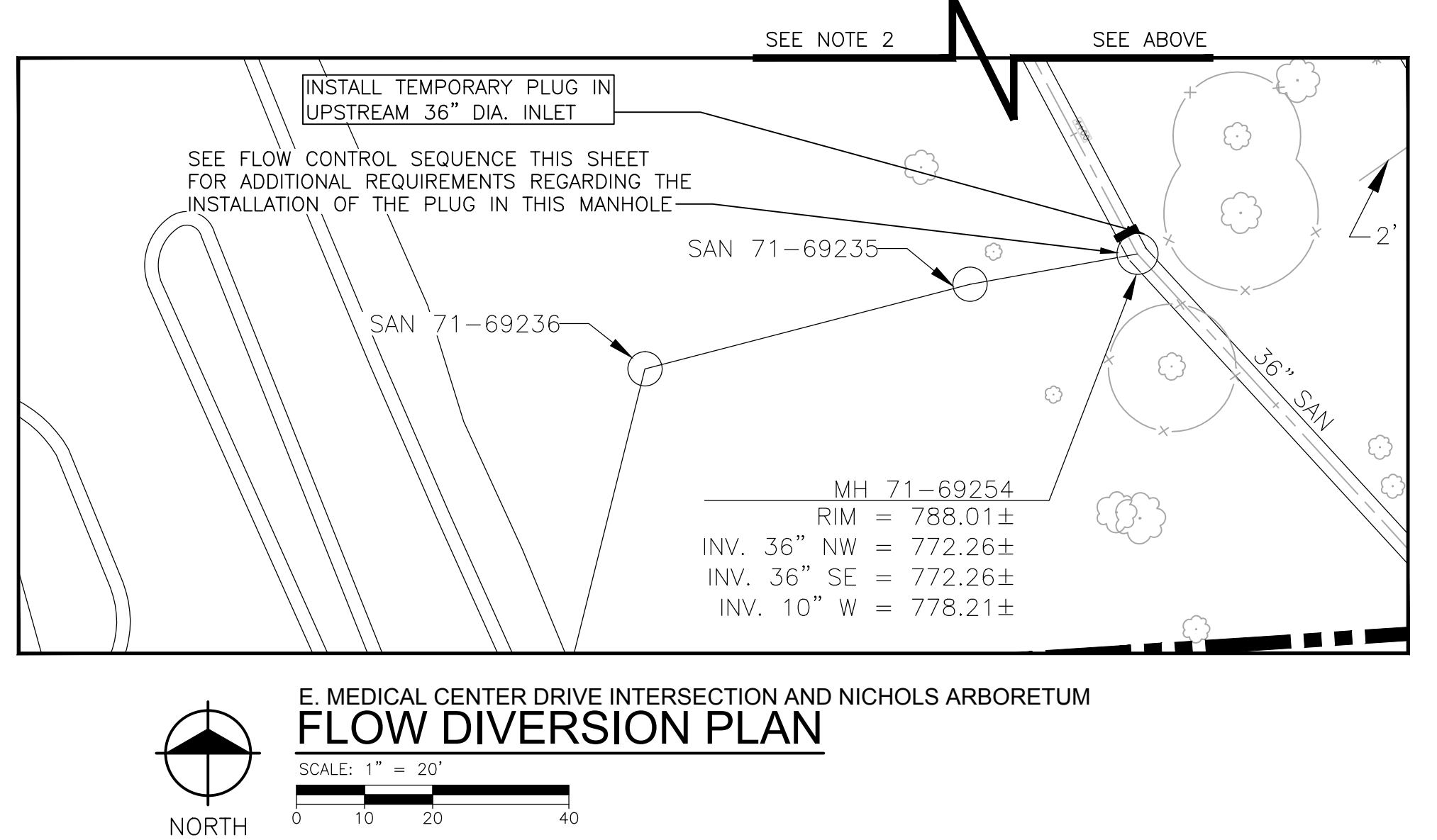
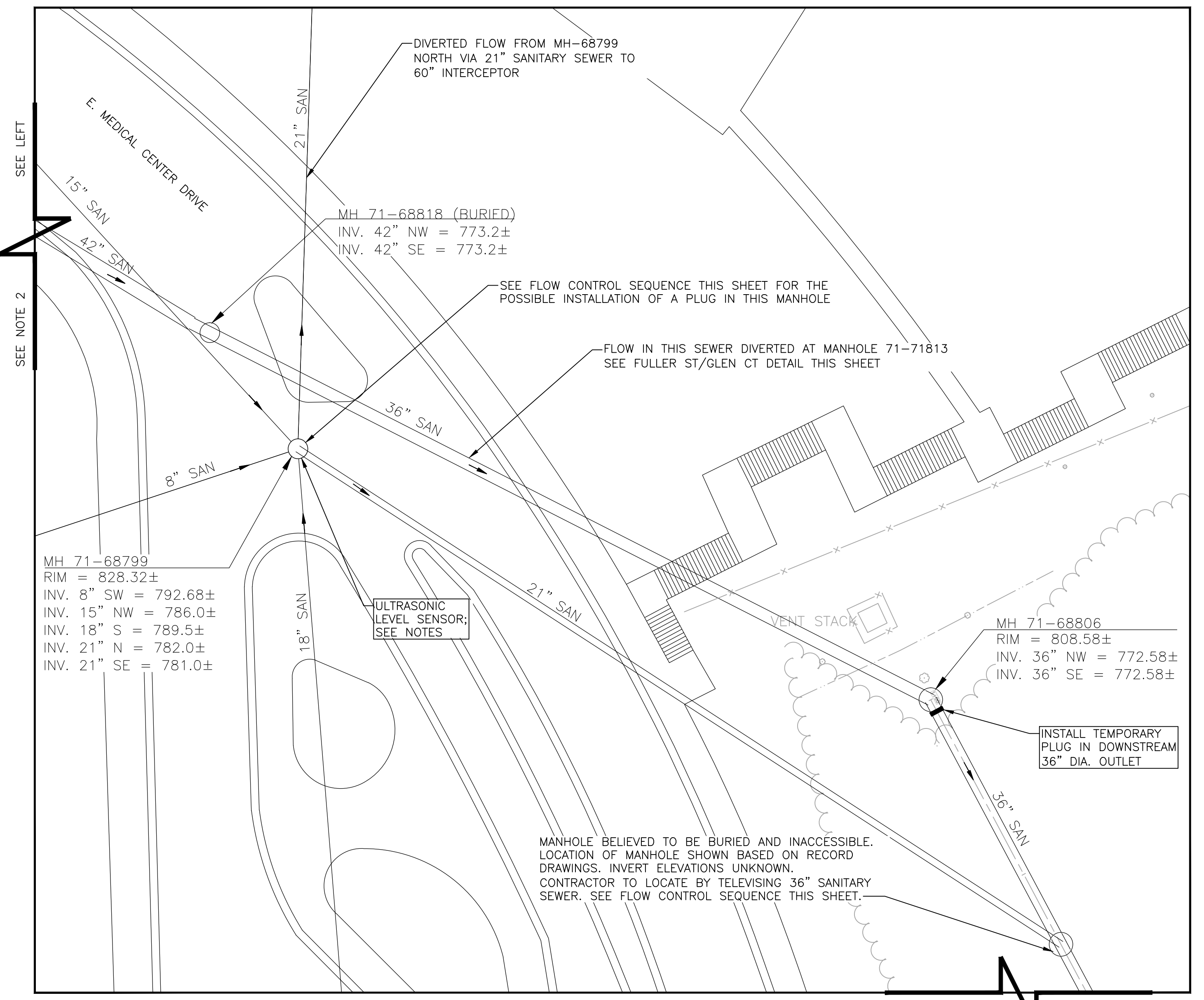
|           |              |
|-----------|--------------|
| SHEET No. | DRAWING No.  |
| 9 OF 34   | 2016-026-EP1 |



**FULLER STREET/GLEN COURT INTERSECTION  
FLOW DIVERSION PLAN**  
SCALE: 1" = 20'  
NORTH

**FLOW CONTROL SEQUENCE**

1. THE CONTRACTOR SHALL INSTALL A TOTAL OF 3 PLUGS IN THE EXISTING SANITARY SEWER TO SATISFY THE REQUIREMENTS OF THE SANITARY FLOW DIVERSION PLAN. THE CONTRACTOR SHALL PERFORM THE INSTALLATION OF THESE PLUGS IN THE SEQUENCE DESCRIBED BELOW.
2. THE CONTRACTOR SHALL INSTALL THE FIRST PLUG IN THE 42" SANITARY SEWER AT MH 71-71813, FORCING FLOW TO BE DIVERTED NORTH TO MH 71-71953.
3. AFTER INSTALLATION OF THE 42" PLUG IN MH 71-71813 AND ALLOWING FLOW IN THE 42" SANITARY SEWER TO FLOW DOWNSTREAM OF MH 71-68806 INTO THE 36" SANITARY SEWER, THE CONTRACTOR SHALL TELEVIEW THE EXISTING 36" SANITARY SEWER BETWEEN MANHOLES 71-68806 AND 71-69254 IN ACCORDANCE WITH DETAILED SPECIFICATION "SEWER FLOW CONTROL" TO DETERMINE IF THE BURIED MANHOLE AT APPROXIMATE STATION 1+70 HAS A FRAME AND COVER THAT COULD POSSIBLY LEAK DURING THE FLOW DIVERSION.
4. BASED ON THE RESULTS OF THE TELEVISION INVESTIGATION OF THE BURIED MANHOLE, THE CONTRACTOR SHALL EITHER INSTALL THE SECOND PLUG THROUGH THE 21" SEWER TO MH 71-68799 AND OUT THROUGH THE 21" SANITARY SEWER GOING NORTH OR IN THE 21" OUTLET TO THE SOUTHEAST IN MH 71-68799, FORCING FLOW TO BE DIVERTED THROUGH THE 21" SANITARY SEWER GOING NORTH.
5. ALTERNATIVELY, THE CONTRACTOR MAY ELECT TO AVOID STEPS 3 AND 4 AND INSTALL THE SECOND PLUG IN MH 71-68799 IN THE 21" SANITARY SEWER LEADING TO THE SOUTHEAST FORCING FLOW TO BE DIVERTED THROUGH THE 21" SANITARY SEWER GOING NORTH. IN THIS CASE, THE INSTALLATION OF THE PLUG IN MH 71-69254 IS NOT NECESSARY.
6. WHETHER ELECTING TO PERFORM STEPS 1-4, OR 1-2 AND 5, THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE PLUG AND/OR ULTRASONIC LEVEL SENSOR AND THEIR REQUIRED MONITORING WITH THE UNIVERSITY OF MICHIGAN HOSPITAL COMPLEX AS REQUIRED IN THE CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL THEN INSTALL THE THIRD PLUG IN MH 71-68806.
8. MONITOR MH 71-68806 TO DETERMINE IF ANY FLOWS ARE LEAKING PAST THE PLUG IN MH 71-71813 OR ENTERING THE 42" SANITARY SEWER THROUGH UNKNOWN CONNECTIONS DOWNSTREAM OF MH 71-71813.
9. FLOW FROM THE 8" SANITARY SEWER AT MH 71-69254, THE 8" SANITARY SEWER AT MH 71-70050, AND THE 8" SANITARY SEWER AT MH 71-68995 SHALL BE BYPASSED PER DETAIL ON SHEET 11.
10. PRIOR TO LANE CLOSURE AND INSTALLATION OF PLUG IN MANHOLE 71-71813, CONTRACTOR SHALL PROVIDE A MINIMUM OF 7 DAYS NOTICE TO COORDINATE WITH CITY OF ANN ARBOR.
11. THE CONTRACTOR SHALL BE AWARE THAT FLOW CONTROL PLAN IS APPLICABLE DURING DRY WEATHER CONDITIONS ONLY. CONTRACTOR SHALL NOT MAINTAIN FLOW CONTROL SYSTEM DURING WET WEATHER CONDITIONS, AND SHALL TEMPORARILY REMOVE PLUG(S) TO ALLOW SYSTEM TO RETURN TO NORMAL OPERATIONS.



**E. MEDICAL CENTER DRIVE INTERSECTION AND NICHOLS ARBORETUM  
FLOW DIVERSION PLAN**  
SCALE: 1" = 20'  
NORTH

SEE NOTE 2  
SEE RIGHT  
SEE LEFT

**NOTES**

1. SITE INFORMATION AND SANITARY UTILITIES SHOWN ON THIS SHEET HAVE NOT BEEN SURVEYED AND ARE FOR CONTRACTOR REFERENCE PURPOSES ONLY. WATER, STORM, GAS AND OTHER UTILITIES ARE NOT SHOWN. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND MANHOLE LOCATIONS AS NECESSARY TO COMPLETE WORK.
2. CITY OF ANN ARBOR GIS MAP IS INCLUDED AS AN APPENDIX TO THE CONTRACT DOCUMENTS FOR CONTRACTOR REFERENCE ONLY. THE GIS MAP PROVIDES AN OVERALL PLAN VIEW OF THE SEWER SYSTEM.
3. THE CITY OF ANN ARBOR HAS VIDEO INSPECTION OF MH 71-68799, SHOWING THE PLATFORM AND SEWER CONNECTIONS, THAT CAN BE MADE AVAILABLE TO THE CONTRACTOR UPON REQUEST.
4. CENTER LANE OF FULLER STREET SHALL BE CLOSED DURING INSTALLATION OF PLUG AND ULTRASONIC LEVEL SENSOR IN MH 71-71813.
- 4.1. SEE DETAILED SPECIFICATION "MAINTENANCE OF TRAFFIC" AND MDOT TRAFFIC TYPICAL M0330 FOR GUIDANCE ON CENTER LANE CLOSURE; UTILIZING W20-1 AND W20-5a SIGNS ONLY.
- 4.2. CONTRACTOR SHALL MAINTAIN LEFT TURNS FROM GLEN COURT ONTO FULLER STREET WITH THE USE OF FLAGGERS.
- 4.3. CONTRACTOR SHALL COORDINATE WITH CITY OF ANN ARBOR TO OBTAIN LANE CLOSURE PERMIT AS REQUIRED.
- 4.4. LANE CLOSURE FOR INSTALLATION OF PLUG SHALL OCCUR BETWEEN THE HOURS OF 9 A.M. AND 3:30 P.M., LASTING NO LONGER THAN 4 CONSECUTIVE HOURS.
- 4.5. PRIOR TO LANE CLOSURE AND INSTALLATION OF PLUG IN MANHOLE MH 71-71813, CONTRACTOR SHALL PROVIDE A MINIMUM OF 7 DAYS NOTICE TO COORDINATE WITH CITY OF ANN ARBOR.
5. THE SOUTHEAST BOUND TRAFFIC LANE OF E. MEDICAL CENTER DRIVE SHALL BE TEMPORARILY CLOSED OR OBSTRUCTED DURING INSTALLATION OF PLUG AND ULTRASONIC LEVEL SENSOR IN MH 71-68799.
- 5.1. THE CONTRACTOR SHALL PLAN ON INSTALLING LEVEL SENSOR AND PLUG DURING EARLY MORNING HOURS (BEFORE 7 A.M.) OR LATE EVENING (AFTER 7 P.M.).
- 5.2. CONTRACTOR SHALL COORDINATE ACCESS TO MH 71-68799 AND PROVIDE A MINIMUM OF 7 CALENDAR DAYS TO UNIVERSITY OF MICHIGAN HOSPITAL COMPLEX PERSONNEL TO OBTAIN APPROVAL TO OBSTRUCT TRAFFIC ON E. MEDICAL CENTER DRIVE FOR INSTALLATION AND REMOVAL OF THE ULTRASONIC LEVEL SENSOR AND PLUG.
6. THE CONTRACTOR SHALL PERFORM INSTALLATIONS OF SEWER FLOW CONTROL DEVICES IN MH 71-71813 AND MH 71-68799 IN ACCORDANCE WITH REQUIREMENTS IN DETAILED SPECIFICATIONS "MAINTENANCE OF TRAFFIC" AND "CONSTRUCTION SEQUENCING."

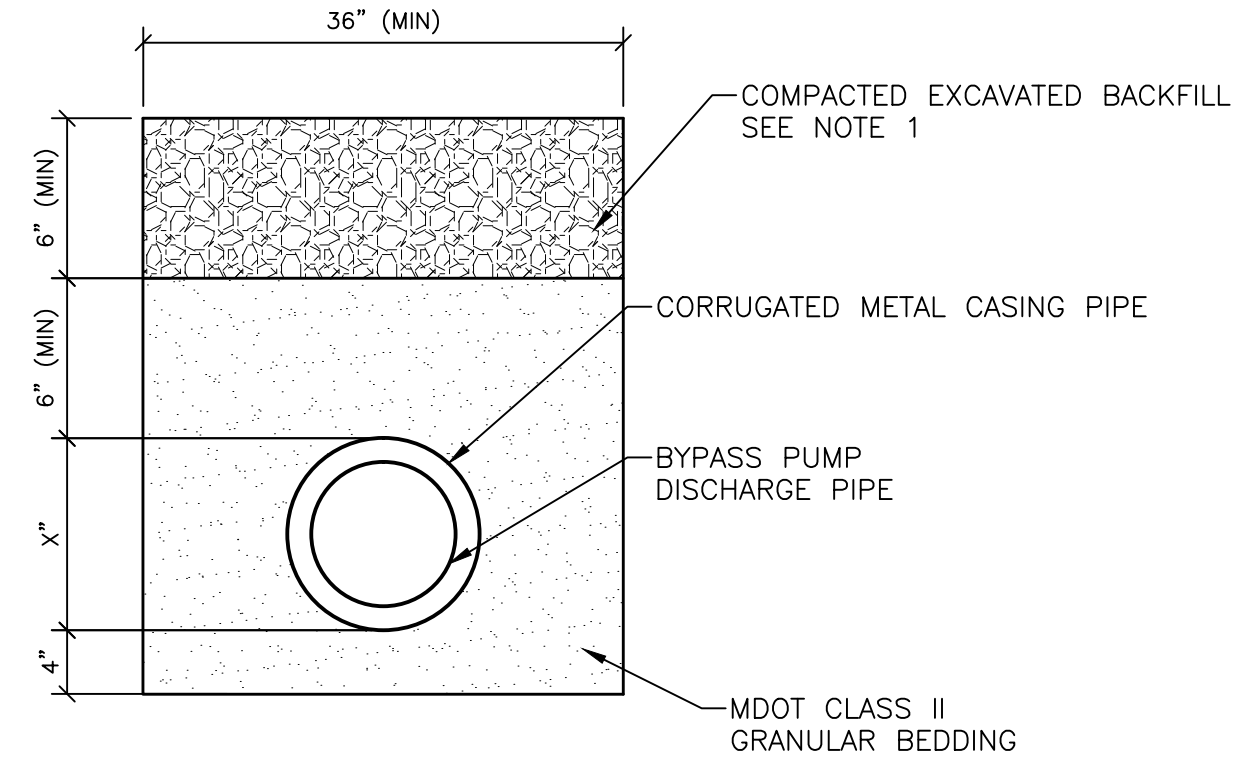
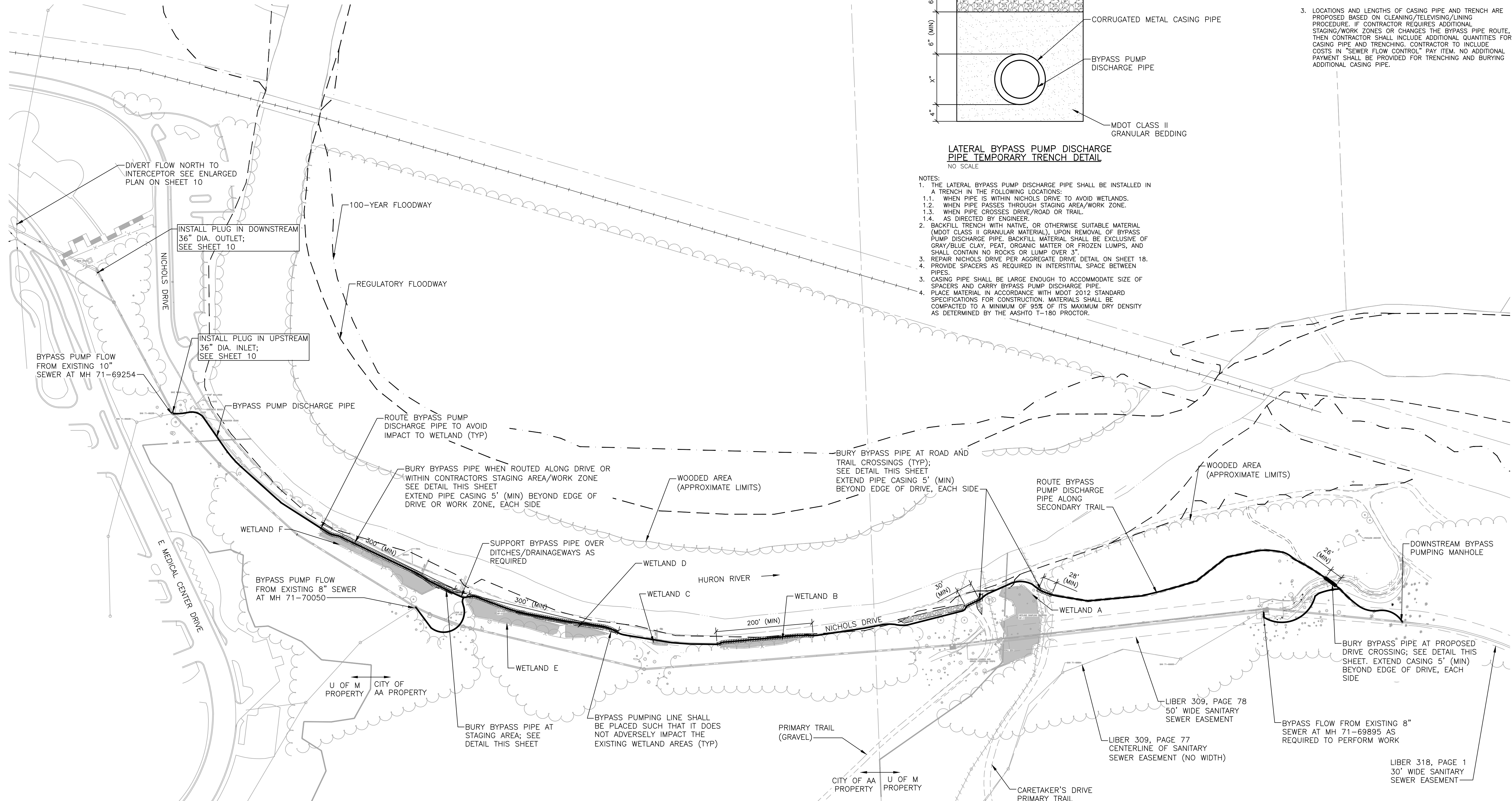
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**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
SANITARY FLOW DIVERSION AND BYPASS PUMPING PLAN I

SCALE PLAN: 1" = 100'  
DRAWING NO.: 2016-026-SFC1  
SHEET NO.: 10 OF 34

Z:\2016\160296\CAD\CD\Bypass Pumping Layout.dwg Dwg Created: 18-Oct-16 - standard (reduced).ctb - Plot Date: 18-Oct-16



- NOTES:**
- THE LATERAL BYPASS PUMP DISCHARGE PIPE SHALL BE INSTALLED IN A TRENCH IN THE FOLLOWING LOCATIONS:
    - WHEN PIPE IS WITHIN NICHOLS DRIVE TO AVOID WETLANDS.
    - WHEN PIPE PASSES THROUGH STAGING AREA/WORK ZONE.
    - WHEN PIPE CROSSES DRIVE/ROAD OR TRAIL.
    - AS DIRECTED BY ENGINEER.
  - BACKFILL TRENCH WITH NATIVE, OR OTHERWISE SUITABLE MATERIAL (MDOT CLASS II GRANULAR MATERIAL), UPON REMOVAL OF BYPASS PUMP DISCHARGE PIPE. BACKFILL MATERIAL SHALL BE EXCLUSIVE OF GRAY/BLUE CLAY, PEAT, ORGANIC MATTER OR FROZEN LUMPS, AND SHALL CONTAIN NO ROCKS OR LUMP OVER 3".
  - REPAIR NICHOLS DRIVE PER AGGREGATE DRIVE DETAIL ON SHEET 18.
  - PROVIDE SPACERS AS REQUIRED IN INTERSTITIAL SPACE BETWEEN PIPES.
  - CASING PIPE SHALL BE LARGE ENOUGH TO ACCOMMODATE SIZE OF SPACERS AND CARRY BYPASS PUMP DISCHARGE PIPE.
  - PLACE MATERIAL IN ACCORDANCE WITH MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION. MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY THE AASHTO T-180 PROCTOR.

- NOTES**
- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
  - INSTALL PLUG IN MANHOLE 71-71813 AT FULLER/GLEN INTERSECTION. SEE SHEET 10 FOR ENLARGED PLAN.
  - LOCATIONS AND LENGTHS OF CASING PIPE AND TRENCH ARE PROPOSED BASED ON CLEANING/TELEVISION/LINING PROCEDURE. IF CONTRACTOR REQUIRES ADDITIONAL STAGING/WORK ZONES OR CHANGES THE BYPASS PIPE ROUTE, THEN CONTRACTOR SHALL INCLUDE ADDITIONAL QUANTITIES FOR CASING PIPE AND TRENCHING. CONTRACTOR TO INCLUDE COSTS IN "SEWER FLOW CONTROL" PAY ITEM. NO ADDITIONAL PAYMENT SHALL BE PROVIDED FOR TRENCHING AND BURYING ADDITIONAL CASING PIPE.



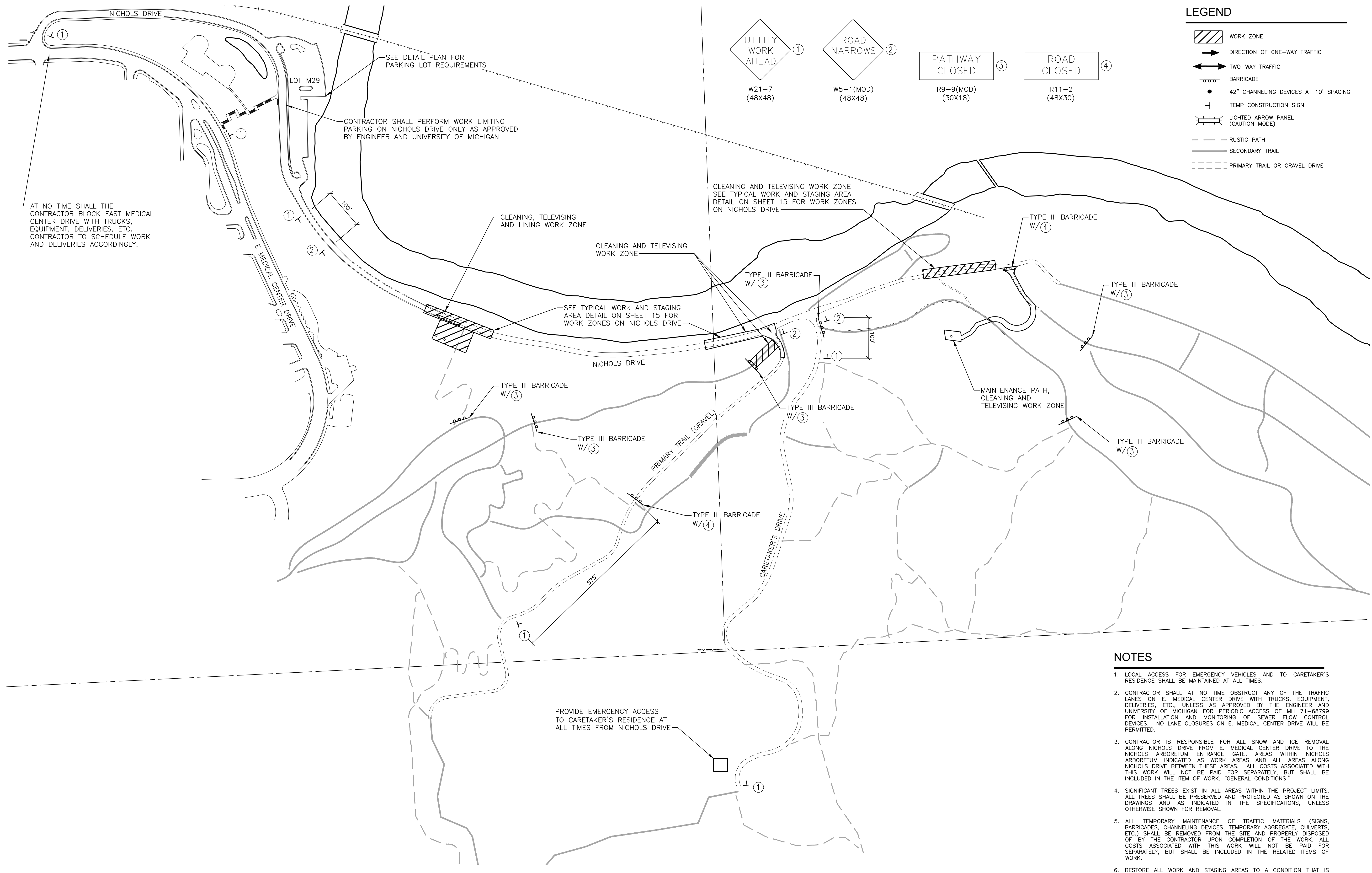
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**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
SANITARY FLOW DIVERSION AND BYPASS PUMPING PLAN II

|                       |                           |
|-----------------------|---------------------------|
| SCALE PLAN: 1" = 100' | DRAWING No. 2016-026-SFC2 |
| SHEET No. 11 OF 34    |                           |

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**LEGEND**

- WORK ZONE
- DIRECTION OF ONE-WAY TRAFFIC
- TWO-WAY TRAFFIC
- BARRICADE
- 42" CHANNELING DEVICES AT 10' SPACING
- TEMP CONSTRUCTION SIGN
- LIGHTED ARROW PANEL (CAUTION MODE)
- RUSTIC PATH
- SECONDARY TRAIL
- PRIMARY TRAIL OR GRAVEL DRIVE

**TRAFFIC SIGNS**

- UTILITY WORK AHEAD ①  
W21-7 (48X48)
- ROAD NARROWS ②  
W5-1(MOD) (48X48)
- PATHWAY CLOSED ③  
R9-9(MOD) (30X18)
- ROAD CLOSED ④  
R11-2 (48X30)

AT NO TIME SHALL THE CONTRACTOR BLOCK EAST MEDICAL CENTER DRIVE WITH TRUCKS, EQUIPMENT, DELIVERIES, ETC. CONTRACTOR TO SCHEDULE WORK AND DELIVERIES ACCORDINGLY.

SEE DETAIL PLAN FOR PARKING LOT REQUIREMENTS

CONTRACTOR SHALL PERFORM WORK LIMITING PARKING ON NICHOLS DRIVE ONLY AS APPROVED BY ENGINEER AND UNIVERSITY OF MICHIGAN

CLEANING AND TELEVISIONING WORK ZONE SEE TYPICAL WORK AND STAGING AREA DETAIL ON SHEET 15 FOR WORK ZONES ON NICHOLS DRIVE

CLEANING, TELEVISIONING AND LINING WORK ZONE

CLEANING AND TELEVISIONING WORK ZONE

SEE TYPICAL WORK AND STAGING AREA DETAIL ON SHEET 15 FOR WORK ZONES ON NICHOLS DRIVE

MAINTENANCE PATH, CLEANING AND TELEVISIONING WORK ZONE

PROVIDE EMERGENCY ACCESS TO CARETAKER'S RESIDENCE AT ALL TIMES FROM NICHOLS DRIVE

- NOTES**
1. LOCAL ACCESS FOR EMERGENCY VEHICLES AND TO CARETAKER'S RESIDENCE SHALL BE MAINTAINED AT ALL TIMES.
  2. CONTRACTOR SHALL AT NO TIME OBSTRUCT ANY OF THE TRAFFIC LANES ON E. MEDICAL CENTER DRIVE WITH TRUCKS, EQUIPMENT, DELIVERIES, ETC., UNLESS AS APPROVED BY THE ENGINEER AND UNIVERSITY OF MICHIGAN FOR PERIODIC ACCESS OF MH 71-68799 FOR INSTALLATION AND MONITORING OF SEWER FLOW CONTROL DEVICES. NO LANE CLOSURES ON E. MEDICAL CENTER DRIVE WILL BE PERMITTED.
  3. CONTRACTOR IS RESPONSIBLE FOR ALL SNOW AND ICE REMOVAL ALONG NICHOLS DRIVE FROM E. MEDICAL CENTER DRIVE TO THE NICHOLS ARBORETUM ENTRANCE GATE, AREAS WITHIN NICHOLS ARBORETUM INDICATED AS WORK AREAS, AND ALL AREAS ALONG NICHOLS DRIVE BETWEEN THESE AREAS. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK, "GENERAL CONDITIONS."
  4. SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
  5. ALL TEMPORARY MAINTENANCE OF TRAFFIC MATERIALS (SIGNS, BARRICADES, CHANNELING DEVICES, TEMPORARY AGGREGATE, CULVERTS, ETC.) SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY THE CONTRACTOR UPON COMPLETION OF THE WORK. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
  6. RESTORE ALL WORK AND STAGING AREAS TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "PROJECT CLEAN-UP AND RESTORATION, SPECIAL."

**MAINTENANCE OF TRAFFIC PLAN**  
 SCALE: 1" = 150'

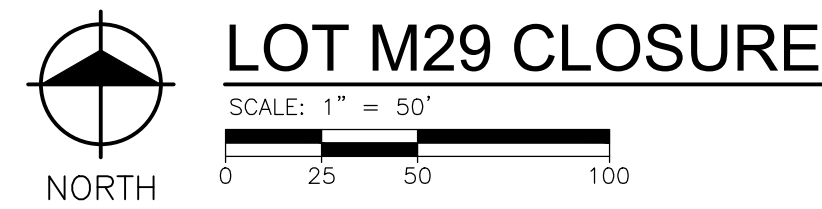
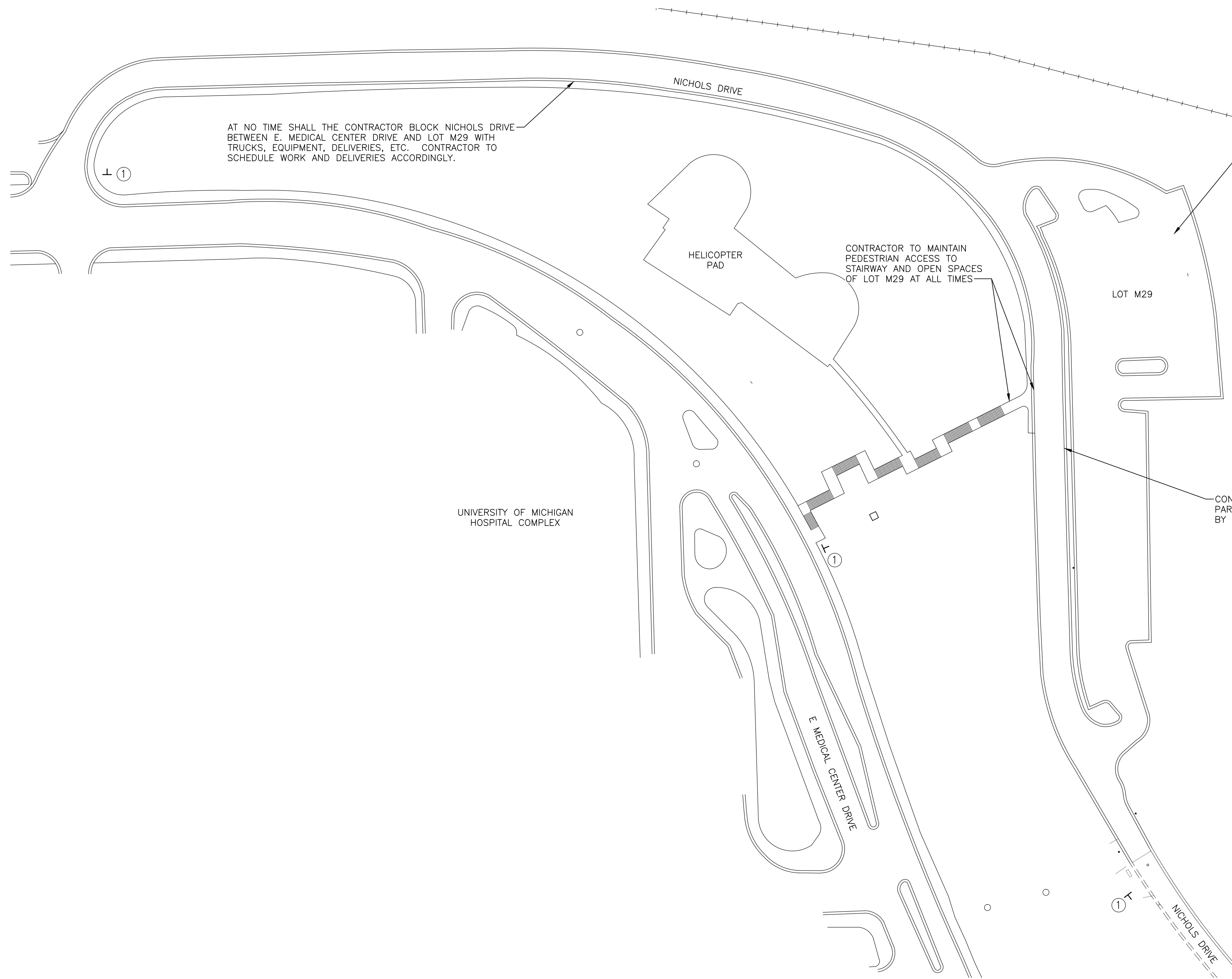
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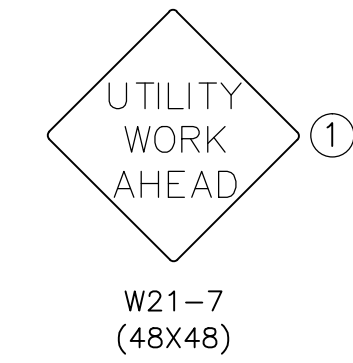
**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
 NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
 MAINTENANCE OF TRAFFIC PLAN I - OVERALL SITE

SCALE PLAN: 1" = 150'  
 DRAWING No. 2016-026-MOTT  
 SHEET No. 12 OF 34



**LEGEND**

- WORK ZONE
- DIRECTION OF ONE-WAY TRAFFIC
- TWO-WAY TRAFFIC
- BARRICADE
- 42" CHANNELING DEVICES AT 10' SPACING
- TEMP CONSTRUCTION SIGN
- LIGHTED ARROW PANEL (CAUTION MODE)



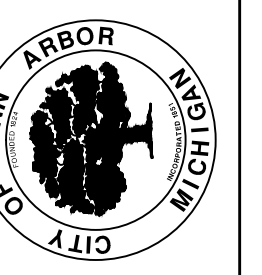
**NOTES**

1. LOCAL ACCESS FOR EMERGENCY VEHICLES AND TO CARETAKER'S RESIDENCE SHALL BE MAINTAINED AT ALL TIMES.
2. CONTRACTOR SHALL AT NO TIME OBSTRUCT ANY OF THE TRAFFIC LANES ON E. MEDICAL CENTER DRIVE WITH TRUCKS, EQUIPMENT, DELIVERIES, ETC., UNLESS AS APPROVED BY THE ENGINEER AND UNIVERSITY OF MICHIGAN FOR PERIODIC ACCESS OF MH 71-68799 FOR INSTALLATION AND MONITORING OF SEWER FLOW CONTROL DEVICES. NO LANE CLOSURES ON E. MEDICAL CENTER DRIVE WILL BE PERMITTED.
3. CONTRACTOR IS RESPONSIBLE FOR ALL SNOW AND ICE REMOVAL ALONG NICHOLS DRIVE FROM E. MEDICAL CENTER DRIVE TO THE NICHOLS ARBORETUM ENTRANCE GATE. AREAS WITHIN NICHOLS ARBORETUM INDICATED AS WORK AREAS AND ALL AREAS ALONG NICHOLS DRIVE BETWEEN THESE AREAS. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK, "GENERAL CONDITIONS."
4. SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
5. ALL TEMPORARY MAINTENANCE OF TRAFFIC MATERIALS (SIGNS, BARRICADES, CHANNELING DEVICES, TEMPORARY AGGREGATE, CULVERTS, ETC.) SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY THE CONTRACTOR UPON COMPLETION OF THE WORK. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
6. RESTORE ALL WORK AND STAGING AREAS TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "PROJECT CLEAN-UP AND RESTORATION, SPECIAL."



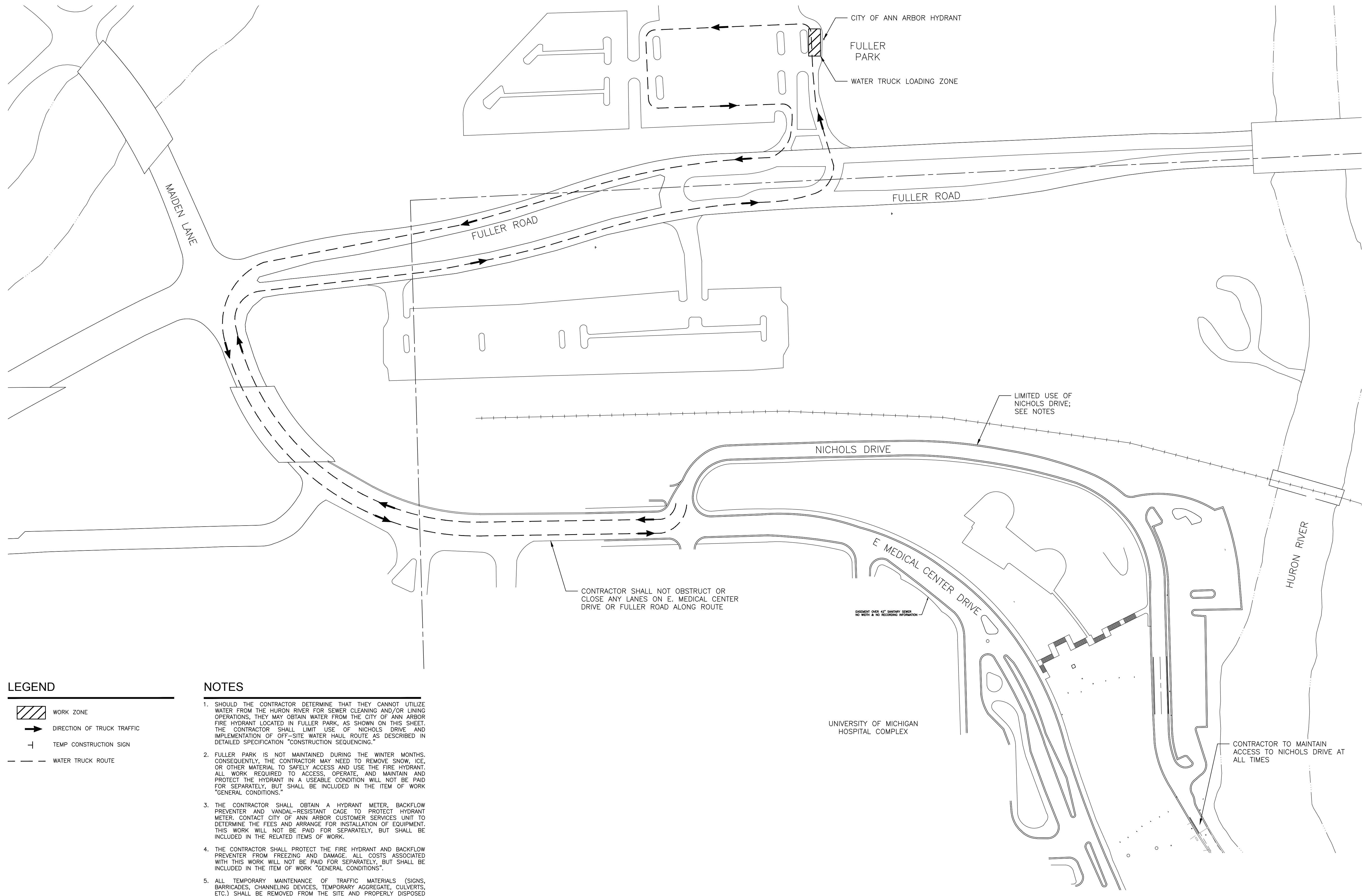
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**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
MAINTENANCE OF TRAFFIC PLAN II - LOT M29

SCALE PLAN: 1" = 50'  
DRAWING No. 2016-026-MOT2



**LEGEND**

- WORK ZONE
- DIRECTION OF TRUCK TRAFFIC
- TEMP CONSTRUCTION SIGN
- WATER TRUCK ROUTE

- NOTES**
1. SHOULD THE CONTRACTOR DETERMINE THAT THEY CANNOT UTILIZE WATER FROM THE HURON RIVER FOR SEWER CLEANING AND/OR LINING OPERATIONS, THEY MAY OBTAIN WATER FROM THE CITY OF ANN ARBOR FIRE HYDRANT LOCATED IN FULLER PARK, AS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL LIMIT USE OF NICHOLS DRIVE AND IMPLEMENTATION OF OFF-SITE WATER HAUL ROUTE AS DESCRIBED IN DETAILED SPECIFICATION "CONSTRUCTION SEQUENCING."
  2. FULLER PARK IS NOT MAINTAINED DURING THE WINTER MONTHS. CONSEQUENTLY, THE CONTRACTOR MAY NEED TO REMOVE SNOW, ICE OR OTHER MATERIAL TO SAFELY ACCESS AND USE THE FIRE HYDRANT. ALL WORK REQUIRED TO ACCESS, OPERATE, AND MAINTAIN AND PROTECT THE HYDRANT IN A USEABLE CONDITION WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS."
  3. THE CONTRACTOR SHALL OBTAIN A HYDRANT METER, BACKFLOW PREVENTER AND VANDAL-RESISTANT CAGE TO PROTECT HYDRANT METER. CONTACT CITY OF ANN ARBOR CUSTOMER SERVICES UNIT TO DETERMINE THE FEES AND ARRANGE FOR INSTALLATION OF EQUIPMENT. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
  4. THE CONTRACTOR SHALL PROTECT THE FIRE HYDRANT AND BACKFLOW PREVENTER FROM FREEZING AND DAMAGE. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS."
  5. ALL TEMPORARY MAINTENANCE OF TRAFFIC MATERIALS (SIGNS, BARRICADES, CHANNELING DEVICES, TEMPORARY AGGREGATE, CULVERTS, ETC.) SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY THE CONTRACTOR UPON COMPLETION OF THE WORK. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
  6. RESTORE ALL WORK AND STAGING AREAS TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "PROJECT CLEAN-UP AND RESTORATION, SPECIAL."

**WATER TRUCK ROUTE**

SCALE: 1" = 80'

NORTH

**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**

NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
MAINTENANCE OF TRAFFIC PLAN III -  
OFF-SITE WATER SOURCE LOCATION AND HAUL ROUTE

SCALE PLAN: 1" = 80'

DRAWING No. 2016-025-MOT3

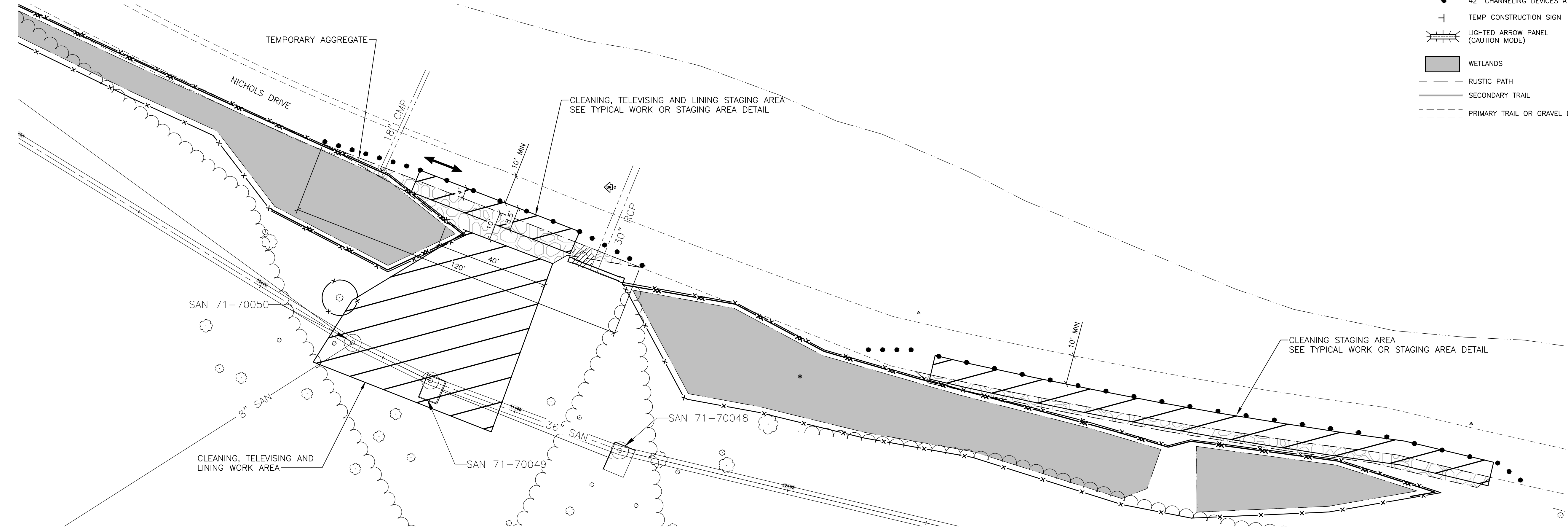
SHEET No. 14 OF 34

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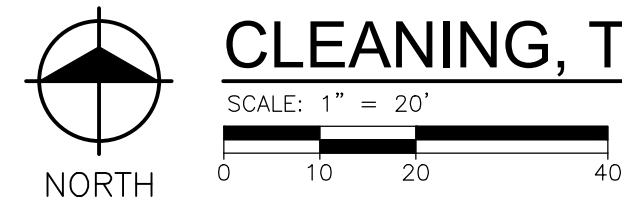
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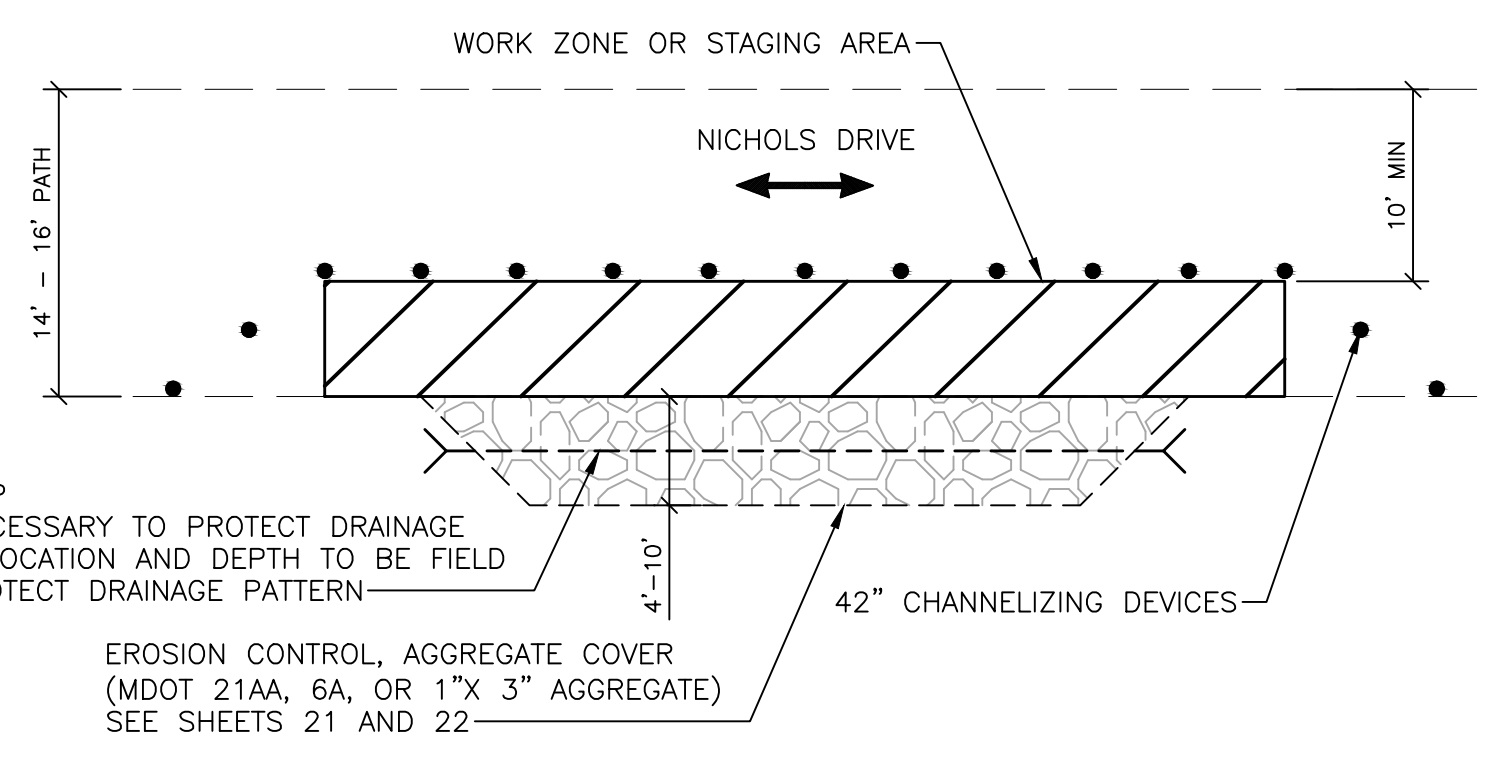


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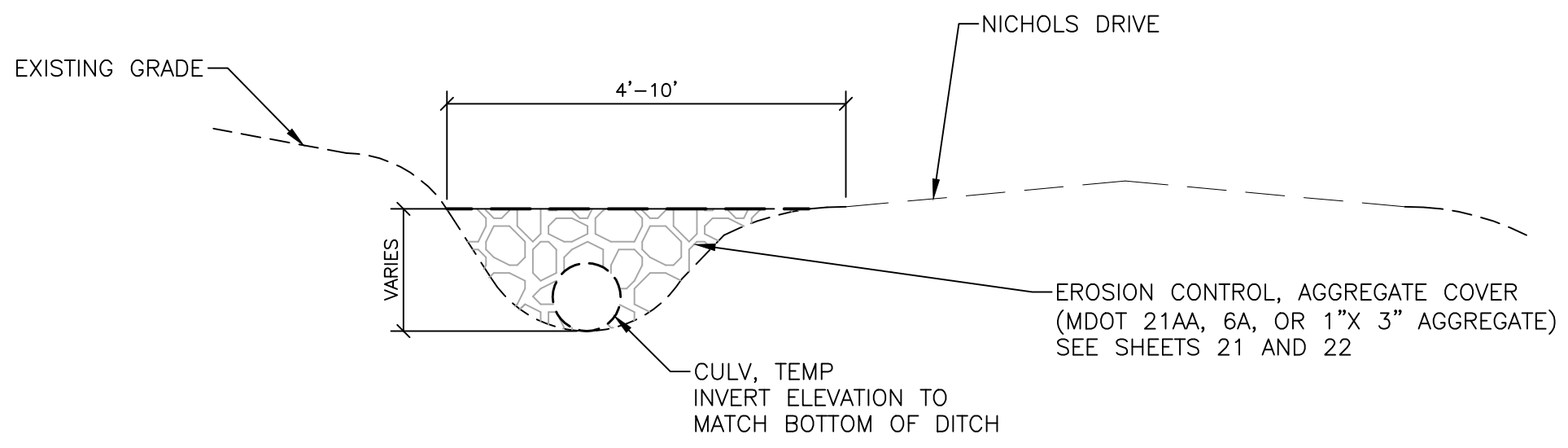
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|  | WORK ZONE                             |
|  | DIRECTION OF ONE-WAY TRAFFIC          |
|  | TWO-WAY TRAFFIC                       |
|  | BARRICADE                             |
|  | 42" CHANNELING DEVICES AT 10' SPACING |
|  | TEMP CONSTRUCTION SIGN                |
|  | LIGHTED ARROW PANEL (CAUTION MODE)    |
|  | WETLANDS                              |
|  | RUSTIC PATH                           |
|  | SECONDARY TRAIL                       |
|  | PRIMARY TRAIL OR GRAVEL DRIVE         |



**CLEANING, TELEVISIONING AND LINING WORK AND STAGING AREA**



**TYPICAL WORK OR STAGING AREA PLAN VIEW**  
NO SCALE



**TYPICAL WORK OR STAGING AREA SECTION VIEW**  
NO SCALE

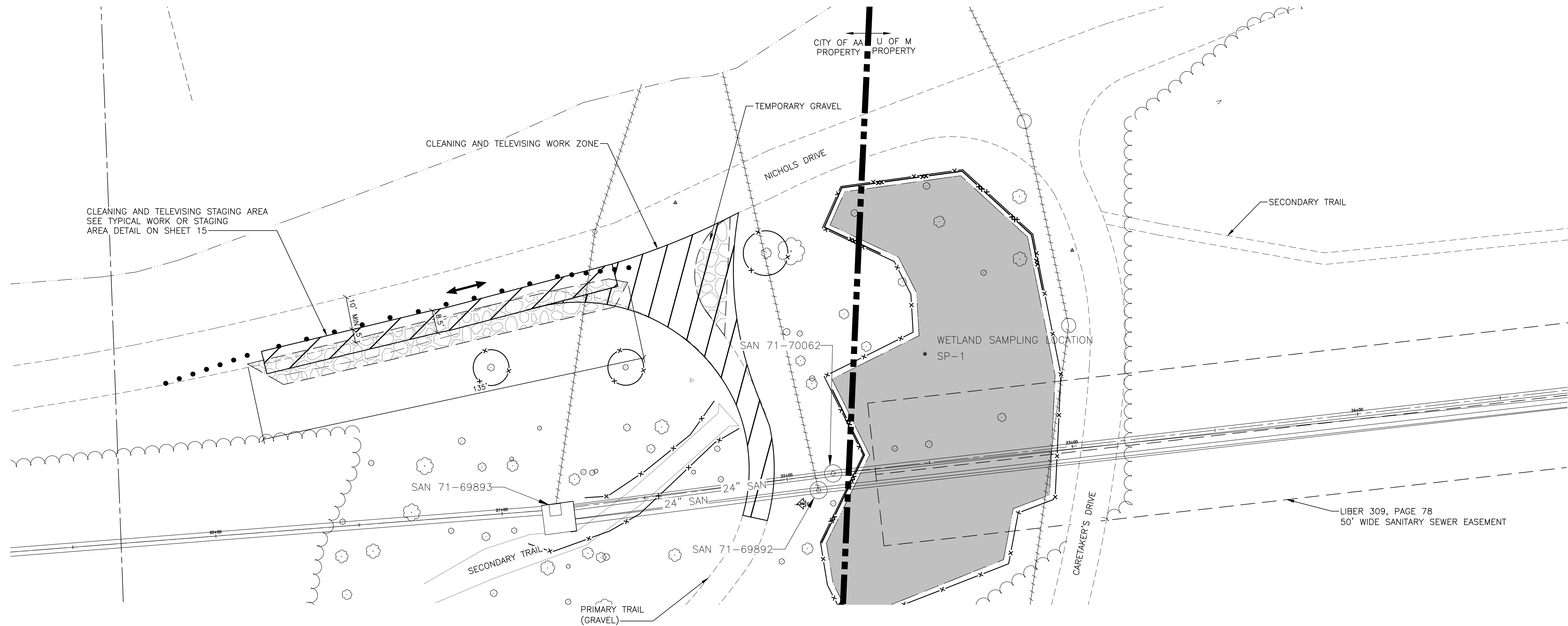
**NOTES**

1. SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
2. LOCAL ACCESS FOR EMERGENCY VEHICLES SHALL BE MAINTAINED AT ALL TIMES. A MINIMUM 10 FOOT LANE SHALL BE PROVIDED ON NICHOLS DRIVE.
3. CONTRACTOR SHALL AT NO TIME DISTURB DESIGNATED WETLAND AREAS.
4. RIVER WATER SOURCE PUMP INTAKE MAY BE ROUTED THROUGH 30" CULVERT AS ALTERNATIVE TO BURYING. SEE SHEETS 9 AND 17.
5. ALL TEMPORARY MAINTENANCE OF TRAFFIC MATERIALS (SIGNS, BARRICADES, CHANNELING DEVICES, TEMPORARY AGGREGATE, CULVERTS, ETC.) SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY THE CONTRACTOR UPON COMPLETION OF THE WORK. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
6. RESTORE ALL WORK AND STAGING AREAS TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "PROJECT CLEAN-UP AND RESTORATION, SPECIAL."

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| <b>PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR</b>                            | <b>NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION</b> |
| SCALE PLAN: 1" = 50'   | DRAWING No. 2016-026-MOT4                                |
| <b>MAINTENANCE OF TRAFFIC PLAN IV - CLEANING, TELEVISIONING, AND LINING AT MH 71-70049</b> |  |
| SHEET No. 15 OF 34   |  |



### CLEANING AND TELEVISIONING WORK AND STAGING AREA

SCALE: 1" = 20'  
 0 10 20 40

### LEGEND

- WORK ZONE
- DIRECTION OF ONE-WAY TRAFFIC
- TWO-WAY TRAFFIC
- BARRICADE
- 42" CHANNELING DEVICES AT 10' SPACING
- TEMP CONSTRUCTION SIGN
- LIGHTED ARROW PANEL (CAUTION MODE)
- WETLANDS

### NOTES

1. SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
2. LOCAL ACCESS FOR EMERGENCY VEHICLES AND THE CARETAKER'S RESIDENCE SHALL BE MAINTAINED AT ALL TIMES. A MINIMUM 10 FOOT LANE SHALL BE PROVIDED ON NICHOLS DRIVE.
3. CONTRACTOR SHALL AT NO TIME DISTURB DESIGNATED WETLAND AREAS.
4. BURY RIVER WATER SOURCE PUMP INTAKE LINE AT DRIVE AND TRAIL CROSSINGS (TYP); LOCATION TO BE DETERMINED BY CONTRACTOR; SEE DETAIL ON SHEET 17.
5. ALL TEMPORARY MAINTENANCE OF TRAFFIC MATERIALS (SIGNS, BARRICADES, CHANNELING DEVICES, TEMPORARY AGGREGATE, CULVERTS, ETC.) SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY THE CONTRACTOR UPON COMPLETION OF THE WORK. ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
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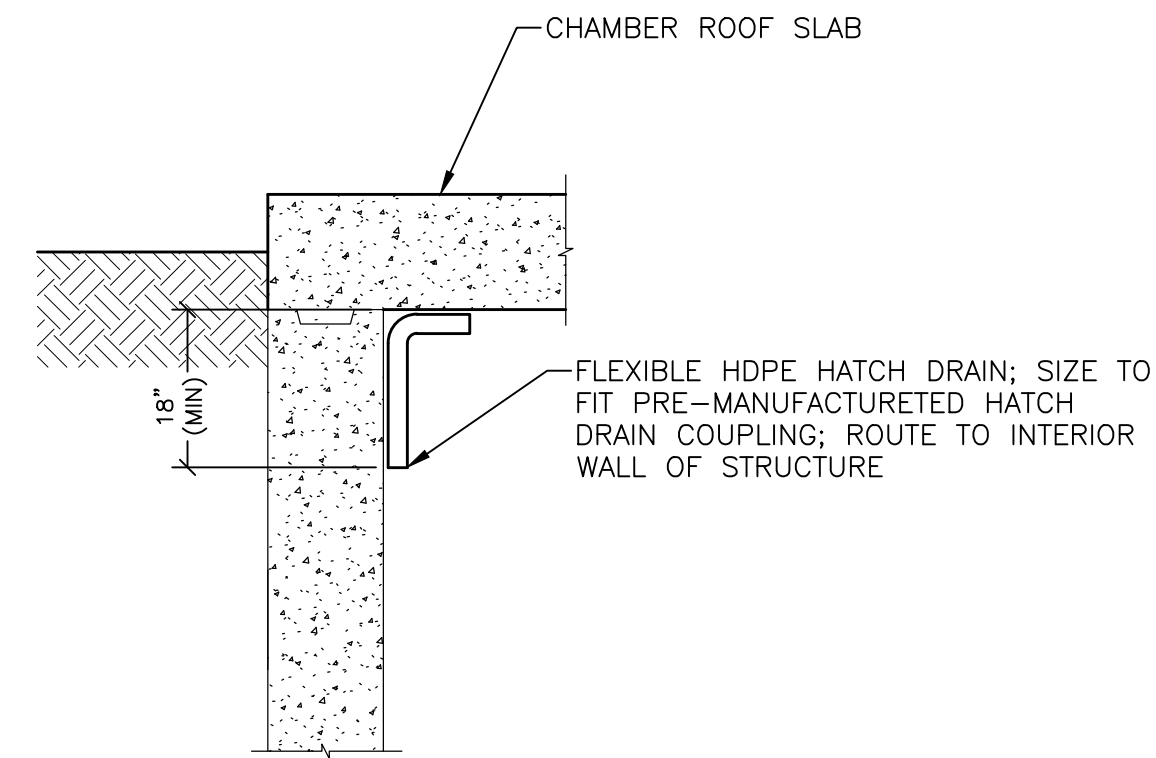
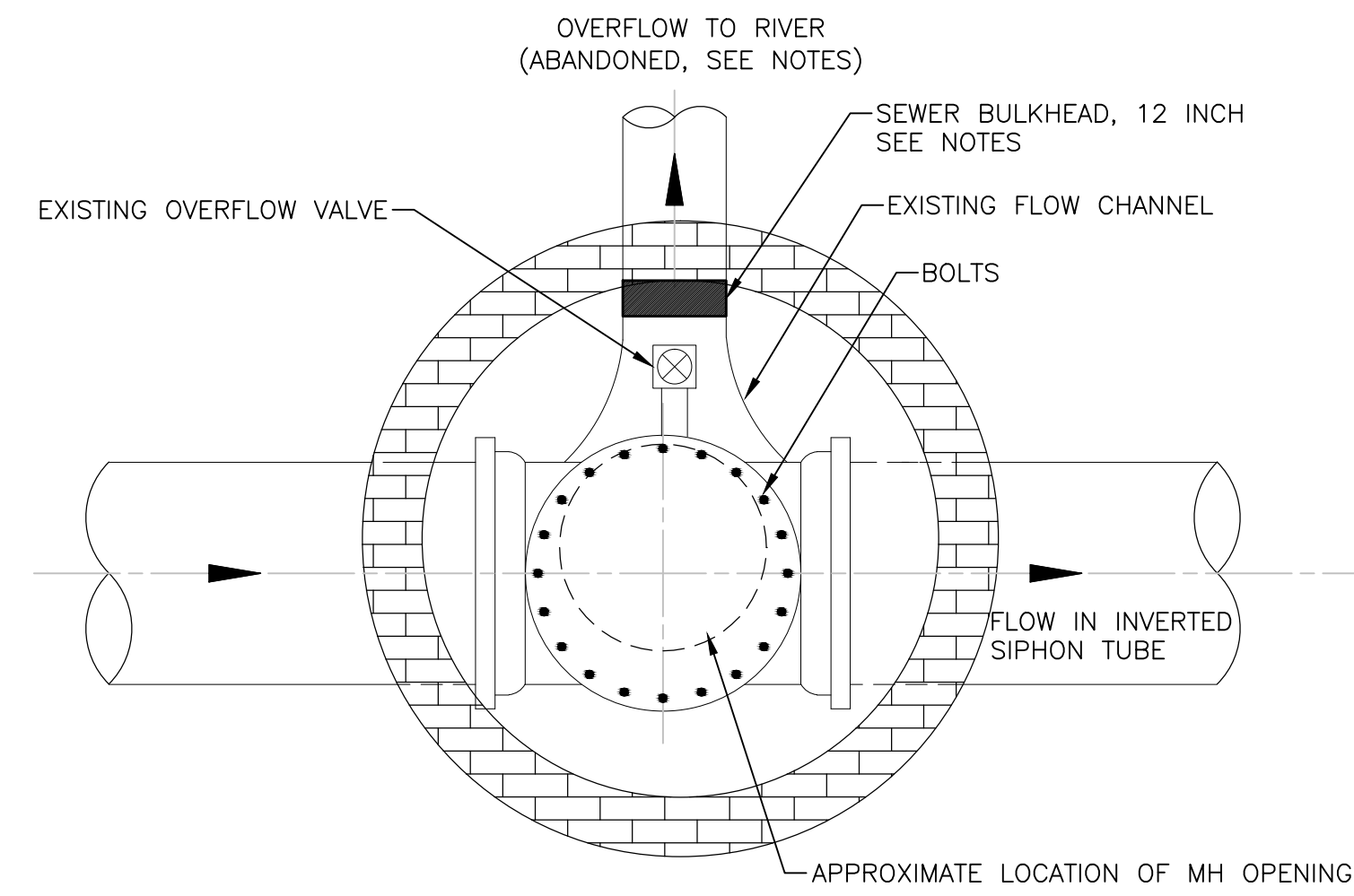
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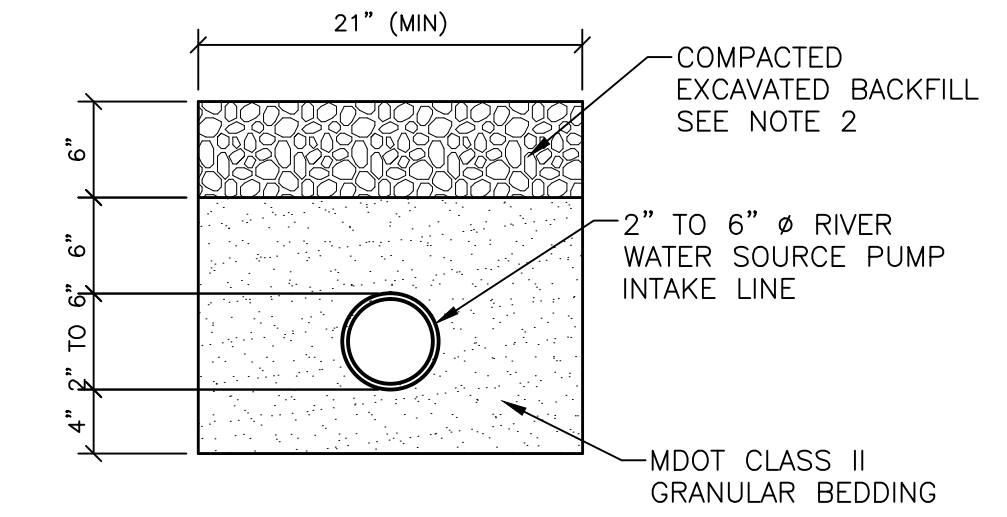
**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
 NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
 MAINTENANCE OF TRAFFIC PLAN V -  
 CLEANING AND TELEVISIONING AT MH 71-69893

SCALE PLAN: 1" = 50'  
 DRAWING No. 2016-026-MOT5



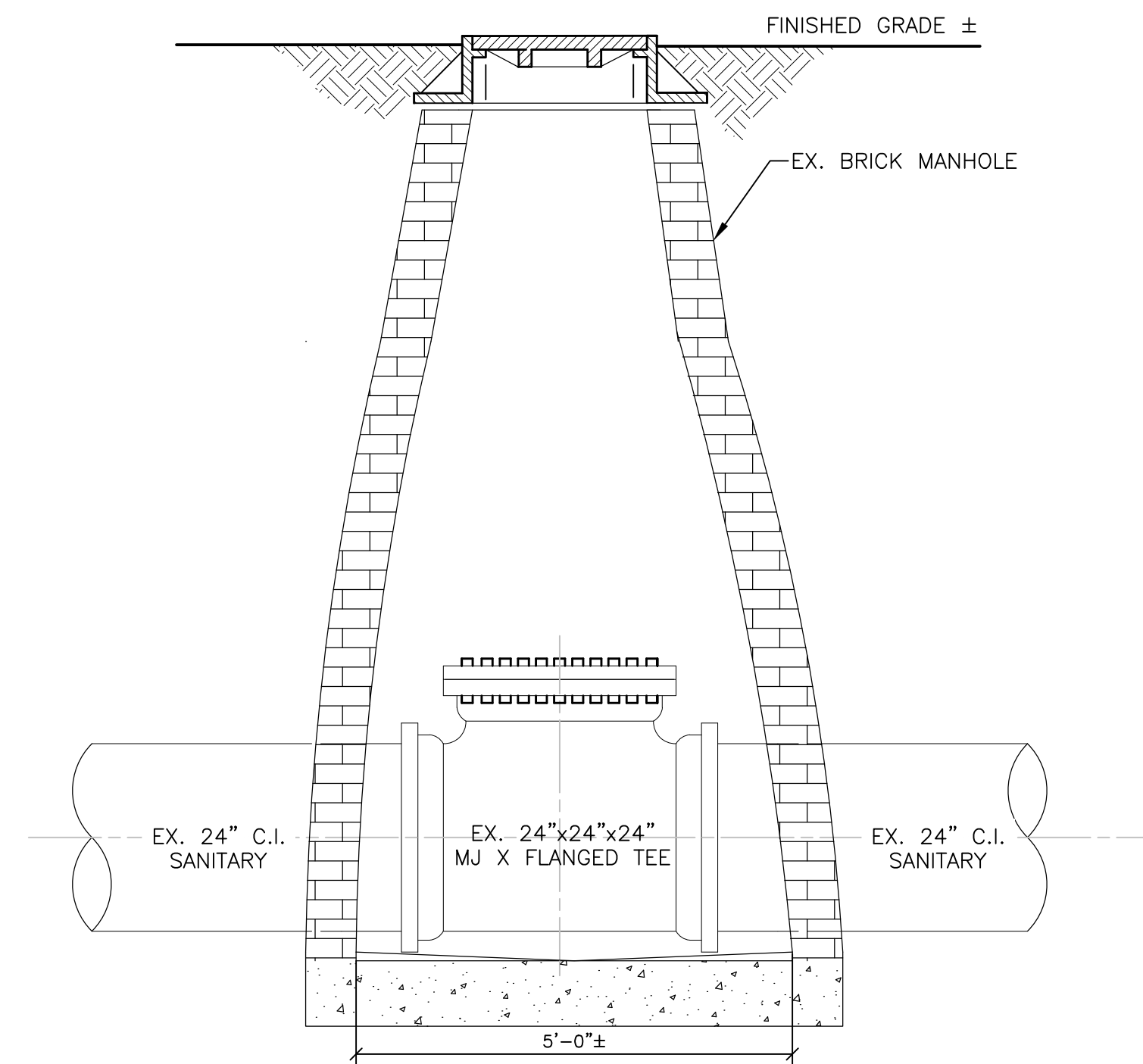


HATCH DRAIN OUTLET  
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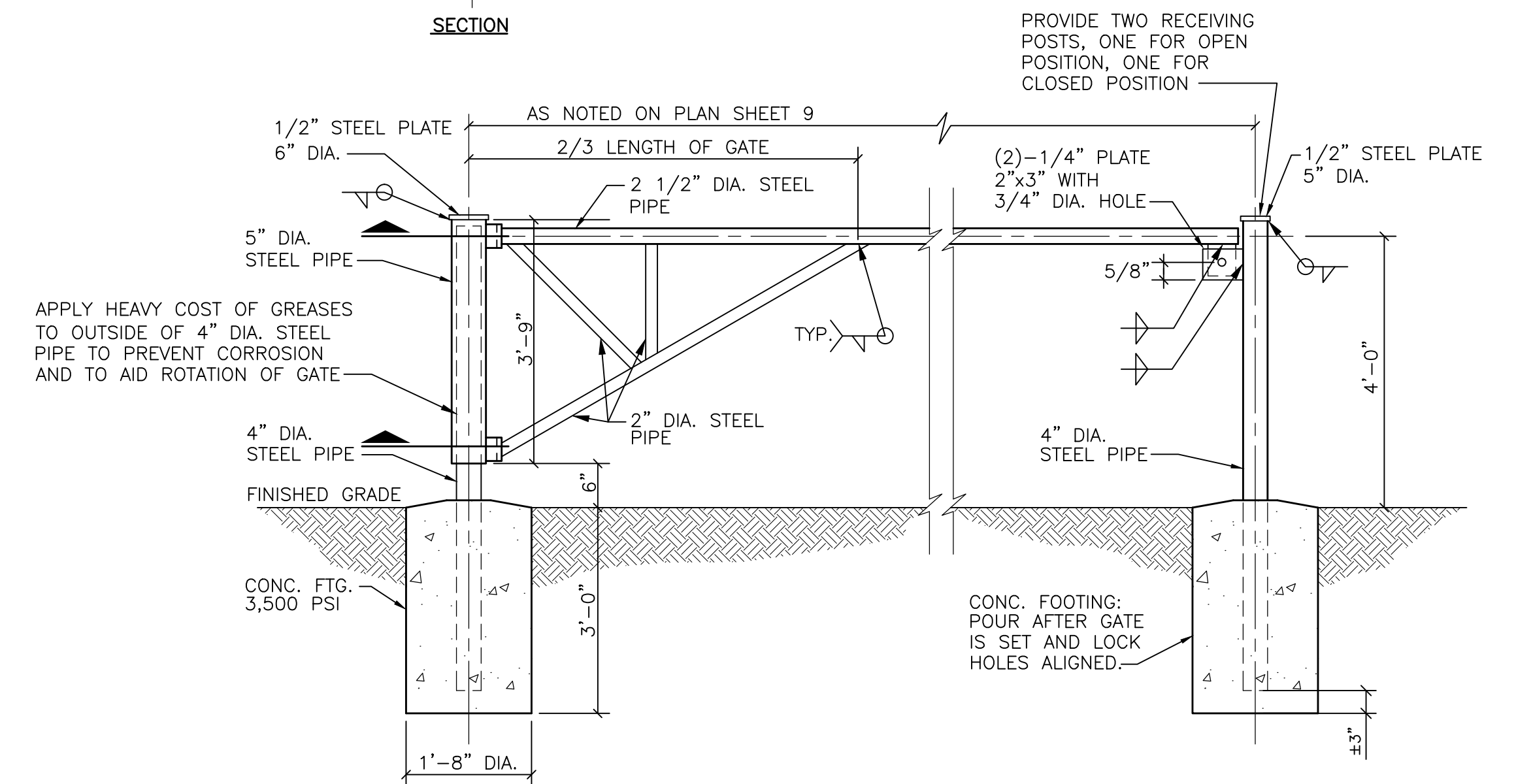
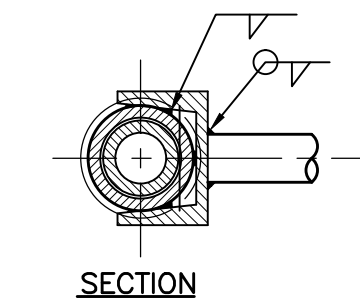
RIVER WATER SOURCE INTAKE LINE  
TEMPORARY TRENCH DETAIL (<6" DIA)  
NO SCALE

- NOTES:
- BURY RIVER WATER SOURCE PUMP INTAKE LINE AT ALL ROAD CROSSINGS. TRENCH SHALL EXTEND ENTIRE WIDTH OF ROAD IN LOCATIONS AS REQUIRED FOR CONTRACTOR CLEANING AND LINING OPERATIONS AND AS APPROVED BY THE ENGINEER.
  - BACKFILL TRENCH WITH NATIVE, OR OTHERWISE SUITABLE MATERIAL (MDOT CLASS II GRANULAR MATERIAL), UPON REMOVAL OF BYPASS PUMP DISCHARGE PIPE. BACKFILL MATERIAL SHALL BE EXCLUSIVE OF GRAY/BLUE CLAY, PEAT, ORGANIC MATTER OR FROZEN LUMPS, AND SHALL CONTAIN NO ROCKS OR LUMP OVER 3".
  - PLACE MATERIAL IN ACCORDANCE WITH MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION. MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY THE AASHTO T-180 PROCTOR.
  - ALL COSTS ASSOCIATED WITH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.
  - PROVIDE SPACERS AS REQUIRED IN INTERSTITIAL SPACE BETWEEN PIPES.
  - CASING PIPE SHALL BE LARGE ENOUGH TO ACCOMMODATE SIZE OF SPACERS AND CARRY BYPASS PUMP DISCHARGE PIPE.
  - UPON REMOVAL OF PIPE AND TEMPORARY TRENCH, REPAIR PORTION OF DRIVE IN ACCORDANCE WITH AGGREGATE DRIVE DETAIL ON SHEET 18.



MH 71-69892 OR MH 71-70062 SIPHON CLEAN-OUT  
NO SCALE

- NOTES:
- MANHOLE 71-69892 IS SHOWN TO REPRESENT BOTH SIPHON CLEAN-OUT MANHOLES. SIZE AND DIMENSIONS OF MH 71-70062 ARE SIMILAR.
  - CONTRACTOR MAY USE SIPHON CLEAN-OUT MANHOLES FOR CLEANING AND TELEVISION ACCESS.
  - PRIOR TO REMOVING FLANGE TO PERFORM ANY CLEANING AND TELEVISION, CONTRACTOR SHALL FIELD VERIFY THAT OVERFLOW TO RIVER IN MH 71-69892 IS ABANDONED AND INSTALL SEWER BULKHEAD, 12 INCH.
  - MANHOLES ARE LOCATED NEAR WETLAND A. ALL WORK PERFORMED IN AND AROUND THESE MANHOLES SHALL BE PERFORMED OUTSIDE OF THE WETLAND PROTECTION FENCING.
  - AT NO TIME IS CONTRACTOR ALLOWED TO REMOVE MANHOLE FRAME AND COVER OR EXCAVATE AROUND THE MANHOLE. CONTRACTOR MAY REMOVE EXISTING BLIND FLANGE ONLY FOR ACCESS OF PIPE AND SHALL RE-INSTALL BLIND FLANGE UPON COMPLETION OF THE WORK. CONTRACTOR SHALL NOTE THAT FLANGE CAP HAS NOT BEEN REMOVED IN A LONG TIME AND BOLTS MAY BE CORRODED AND DAMAGED.
  - CONTRACTOR SHALL REMOVE BLIND FLANGE ONLY AFTER REDUCING FLOW AND LOWERING WATER LEVEL IN SIPHON CHAMBERS AND PIPES TO LEVEL THAT DOES NOT CAUSE SEWAGE AND DEBRIS TO RISE IN THE MANHOLE AND OVERFLOW INTO THE ARBORETUM OR RIVER.



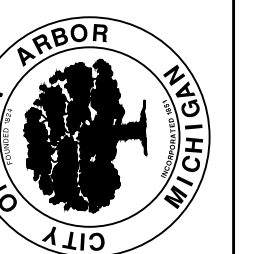
STANDARD SWING GATE  
NO SCALE

- NOTE:
- ALL PIPE ASTM A53, STANDARD WEIGHT, HOT-DIP GALVANIZE ASSEMBLY IN ACCORDANCE WITH ASTM A-153 AFTER FABRICATION.
  - COLOR TO BE GLOSS BLACK. ETCH GALVANIZED SURFACE PRIOR TO COATING. PROVIDE 3 COAT PAINT SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 716 OF THE 2012 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.



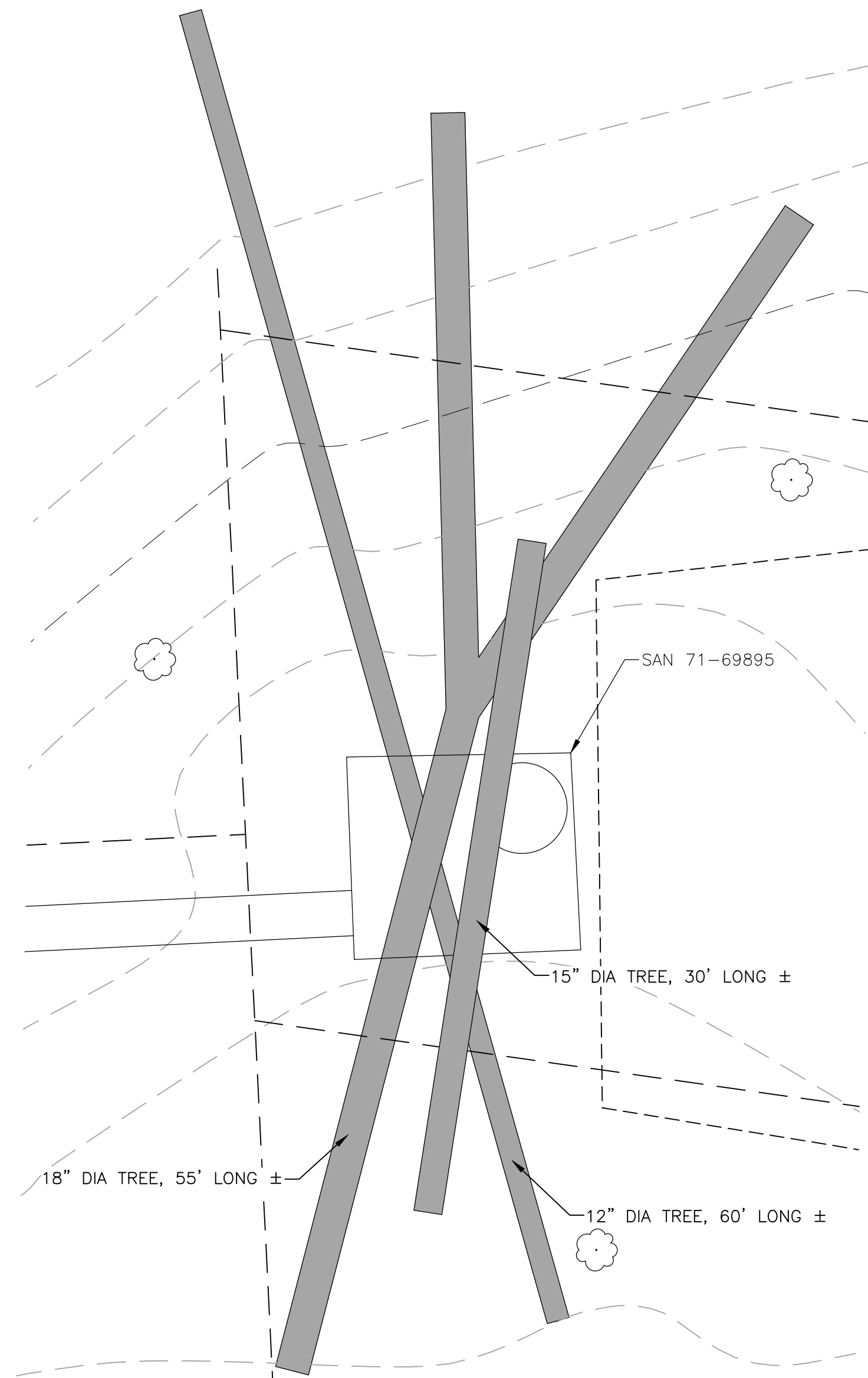
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
MISCELLANEOUS DETAILS I

SCALE PLAN: 1" = 4'  
DRAWING No.  
2016-026-D1

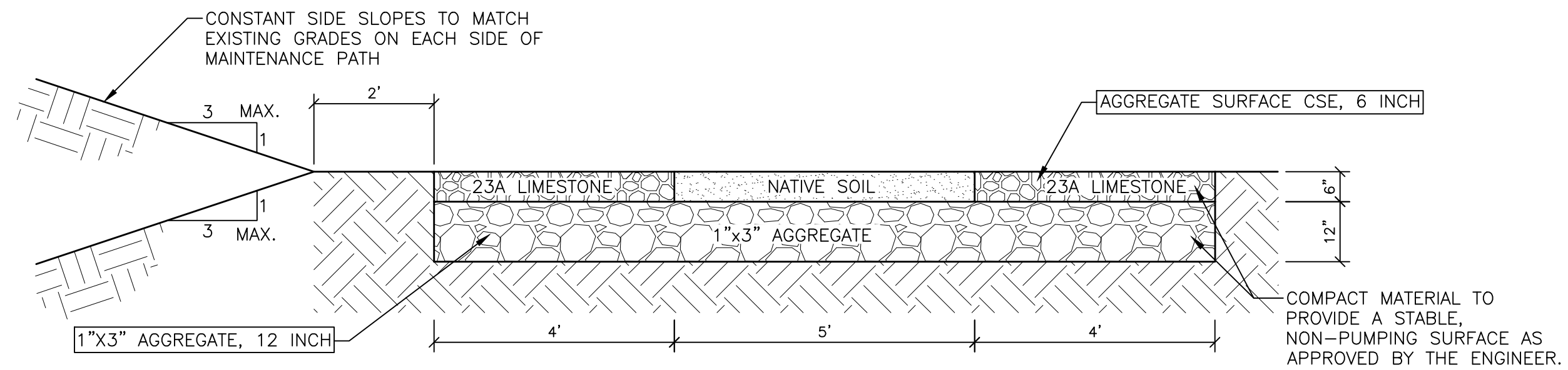


MH 71-69895  
**ENLARGED PLAN**  
SCALE: 1" = 5'  
0 2.5 5 10

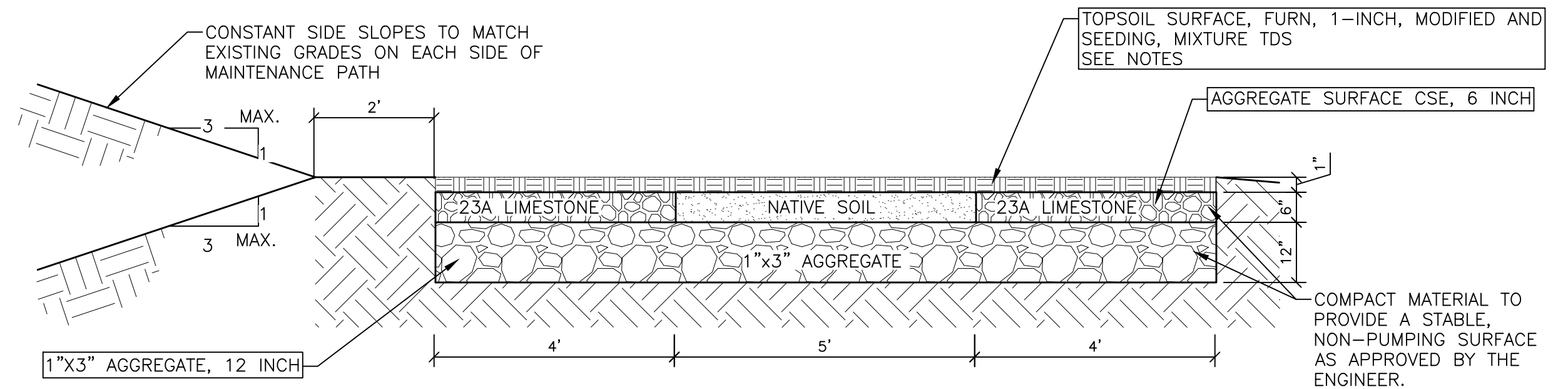
**NOTES:**

1. SHOWN ABOVE ARE THE APPROXIMATE QUANTITY, LENGTH AND DIAMETER OF THE DOWNED TREES ON TOP OF CHAMBER AS OF AUGUST 2016. ADDITIONAL TREES MAY BE PRESENT BY THE TIME THE CONTRACT IS AWARDED AND CONTRACTOR IS ON SITE.
2. SMALLER TREES (<6") AND ANY DOWNED TREES LYING WITHIN THE PROPOSED ACCESS PATH AND MAINTENANCE PAD CLEARING LIMITS ARE NOT SHOWN.
3. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF ALL DOWNED TREES (REGARDLESS OF DIAMETER AND LENGTH), TREES LESS THAN 6" IN DIAMETER, BRUSH, SHRUBS, AND OTHER VEGETATION AND TOPSOIL AS REQUIRED TO INSTALL ACCESS PATH AND MAINTENANCE PAD AND TO PERFORM ALL WORK AT CHAMBER. REMOVAL OF THESE ITEMS IN THIS AREA WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS."
4. TREE REMOVAL (>6") SHALL BE INCLUDED IN THE RELATED TREE REMOVAL PAY ITEMS AS INDICATED ON SHEET 9.
5. IF REQUESTED BY THE UNIVERSITY OF MICHIGAN, THE CONTRACTOR SHALL CUT REMOVED TREES INTO LOGS APPROXIMATELY 10' IN LENGTH BEFORE STORING AT AN ON-SITE LOCATION DESIGNATED BY THE ENGINEER.

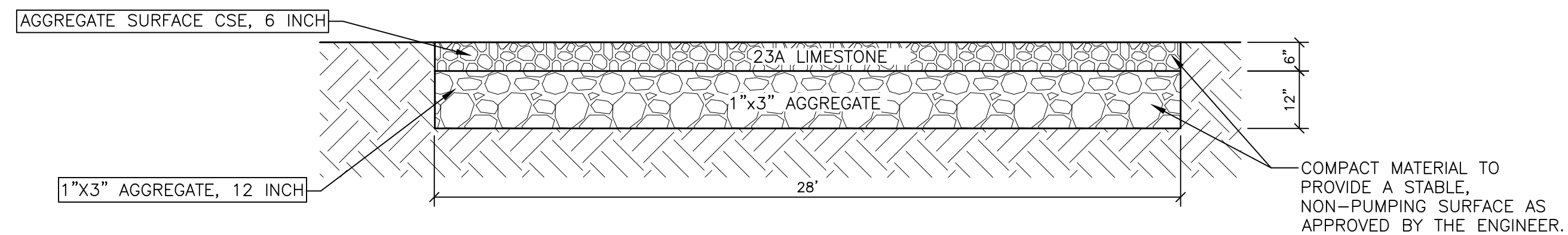
| CONSTRUCTION QUANTITIES |      |   |
|-------------------------|------|---|
| QUANTITY                | UNIT | DESCRIPTION                             |
| 292                     | SY   | TOPSOIL SURFACE, FURN, 1-INCH, MODIFIED |
| 13                      | LB   | SEEDING, MIXTURE TDS                    |
| 665                     | SY   | AGGREGATE SURFACE CSE, 6 INCH           |
| 535                     | SY   | 1"x3" AGGREGATE, 12 INCH                |
| 305                     | SY   | AGGREGATE BASE, 8 INCH                  |



**PROPOSED AGGREGATE ACCESS PATH TO ACCESS SANITARY CHAMBER MH 71-69895 - FROM STA 0+00 TO 1+11**  
NO SCALE



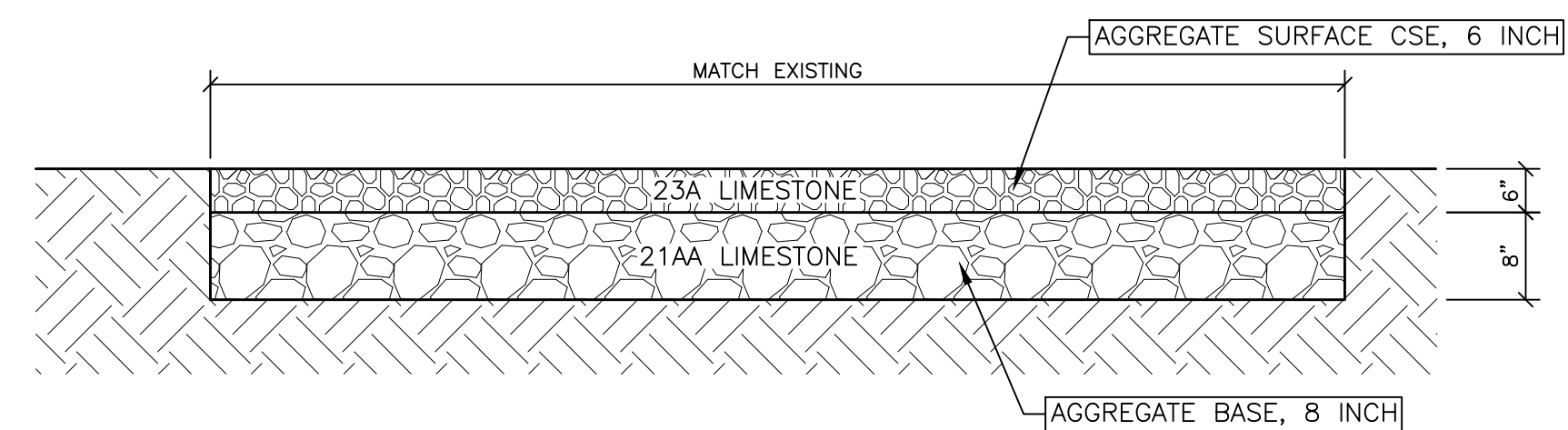
**PROPOSED AGGREGATE ACCESS PATH WITH TOPSOIL AND SEED THROUGH AMPHITHEATER AREA - FROM STA 1+16 TO 3+18**  
NO SCALE



**PROPOSED AGGREGATE MAINTENANCE PAD TO ACCESS SANITARY CHAMBER MH 71-69895**  
NO SCALE

**NOTES:**

1. CONSTRUCT AGGREGATE PAD (APPROXIMATELY 28'x28') AT LOWER INVERTED SIPHON CHAMBER (MH 71-69895).
2. PROPOSED PATH SHALL FOLLOW EXISTING GRADES AS CLOSE AS FEASIBLE TO PROVIDE STABLE ALL-SEASON ACCESS. FINAL GRADE OF THE PATH SHALL BE APPROVED BY THE UNIVERSITY OF MICHIGAN ARBORETUM DIRECTOR AND THE ENGINEER.
3. FOR PATH THROUGH AMPHITHEATER AREA, PLACE LAYER OF TOPSOIL OVER MAINTENANCE PATH AND SEED WITH MDOT TDS SEED MIXTURE (TABLE 917-1) IN ACCORDANCE WITH THE MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION.
4. EARTHWORK REQUIRED TO CONSTRUCT THE AGGREGATE ACCESS PATHS AND MAINTENANCE PAD, INCLUDING TOP SOIL REMOVAL, EXCAVATION, EMBANKMENT, GRADING AND SOIL COMPACTION, SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS".



**AGGREGATE DRIVE DETAIL**  
NO SCALE

**NOTES:**

1. PORTIONS OF NICHOLS DRIVE AND AGGREGATE TRAILS DAMAGED BY CONSTRUCTION ACTIVITIES AND UPON REMOVAL OF TEMPORARY TRENCHES AS REQUIRED FOR BYPASS PUMPING OR RIVER WATER SOURCE INTAKE LINE SHALL BE REPAIRED OR REPLACED TO ORIGINAL DEPTH IN ACCORDANCE WITH DETAIL AND AS ACCEPTABLE TO THE ENGINEER.
2. FURNISH AND INSTALL AGGREGATE SURFACE COURSE IN ACCORDANCE WITH SECTIONS 306 AND 902 OF THE MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION.
3. FURNISH AND INSTALL AGGREGATE BASE COURSE IN ACCORDANCE WITH SECTIONS 302 AND 902 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.



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**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
MISCELLANEOUS DETAILS II

SCALE PLAN: 1" = 40'  
DRAWING No.  
2016-026-D2

# GENERAL NOTES

## GENERAL NOTES:

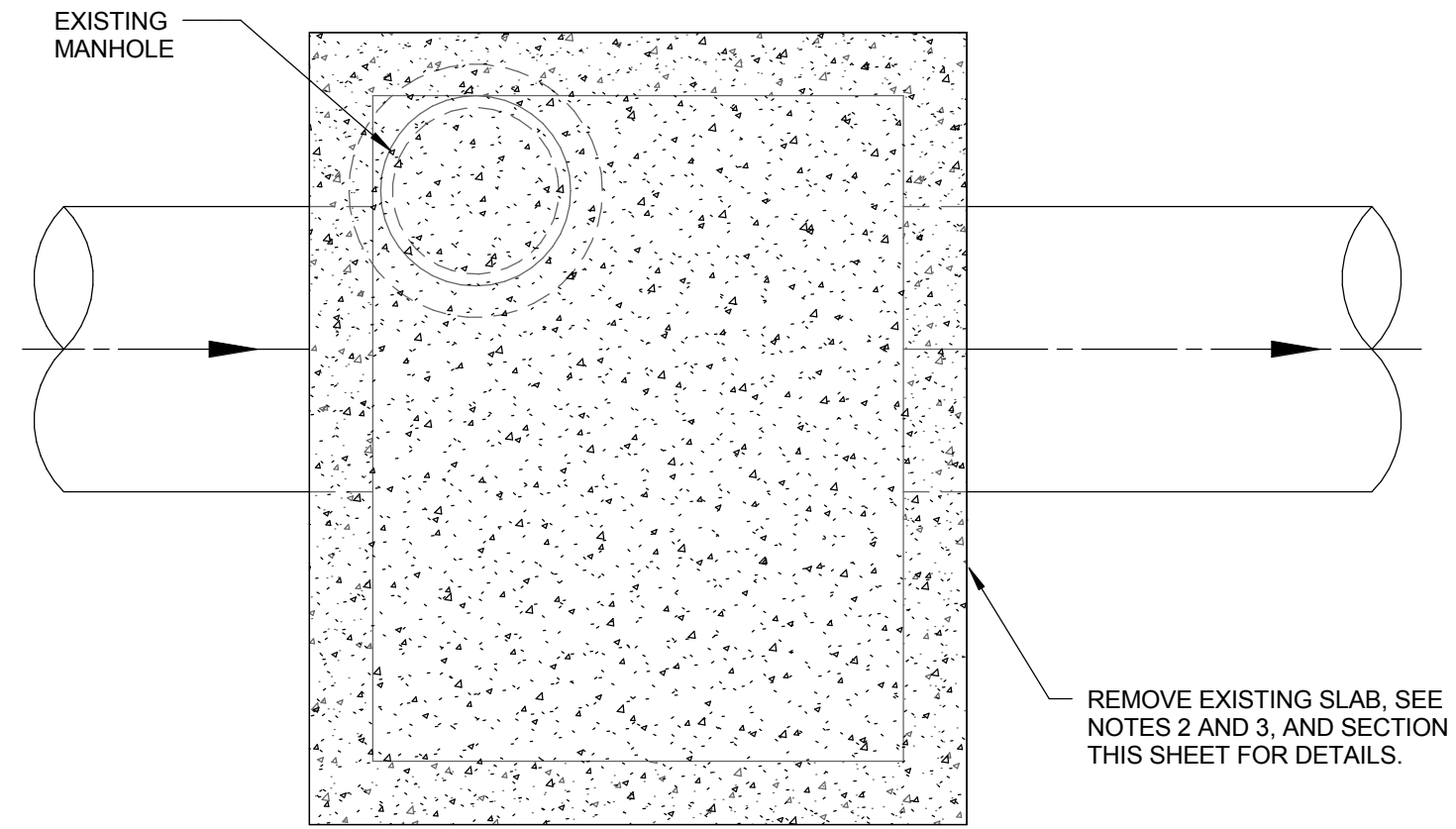
1. INFORMATION ON THIS SHEET SUPPLEMENTS THE DETAILED SPECIFICATIONS. REFER TO THE DETAILED SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. RECORD DRAWINGS OF CHAMBERS ARE NOT AVAILABLE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO SUBMITTING SHOP DRAWINGS OF PROPOSED ROOF SLAB FOR ENGINEER REVIEW. ALTERATIONS TO A STRUCTURAL ITEM OR MEMBER SHALL ONLY BE MADE AFTER APPROVAL BY THE ENGINEER.
3. DRAWINGS HAVE BEEN SET UP TO PLOT AS INTENDED WHEN PLOTTED AS FULL SIZE DRAWINGS. USE OF REDUCED SIZE DRAWINGS SHALL BE AT CONTRACTOR'S RISK.
4. COORDINATE WORK OF ALL TRADES. NOTIFY ENGINEER OF ANY VARIANCE BEFORE WORK BEGINS.
5. CONTRACTOR SHALL FIELD VERIFY CHAMBER DIMENSIONS TO COORDINATE SIZE AND LOCATION OF ALL SLAB OPENINGS.
6. DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONS NOT INDICATED.
7. DESIGN DRAWINGS SHALL NOT BE USED AS SHOP AND/OR ERECTION DRAWINGS. SHOP DRAWINGS SHALL BE DETAILED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MICHIGAN.

## DESIGN DATA:

DESIGN STRESSES  
 CONCRETE REINFORCING \_\_\_\_\_ Fy= 60,000 PSI  
 CONCRETE \_\_\_\_\_  
 EXTERIOR SLABS \_\_\_\_\_ fc= 4,000 PSI

## CONCRETE NOTES:

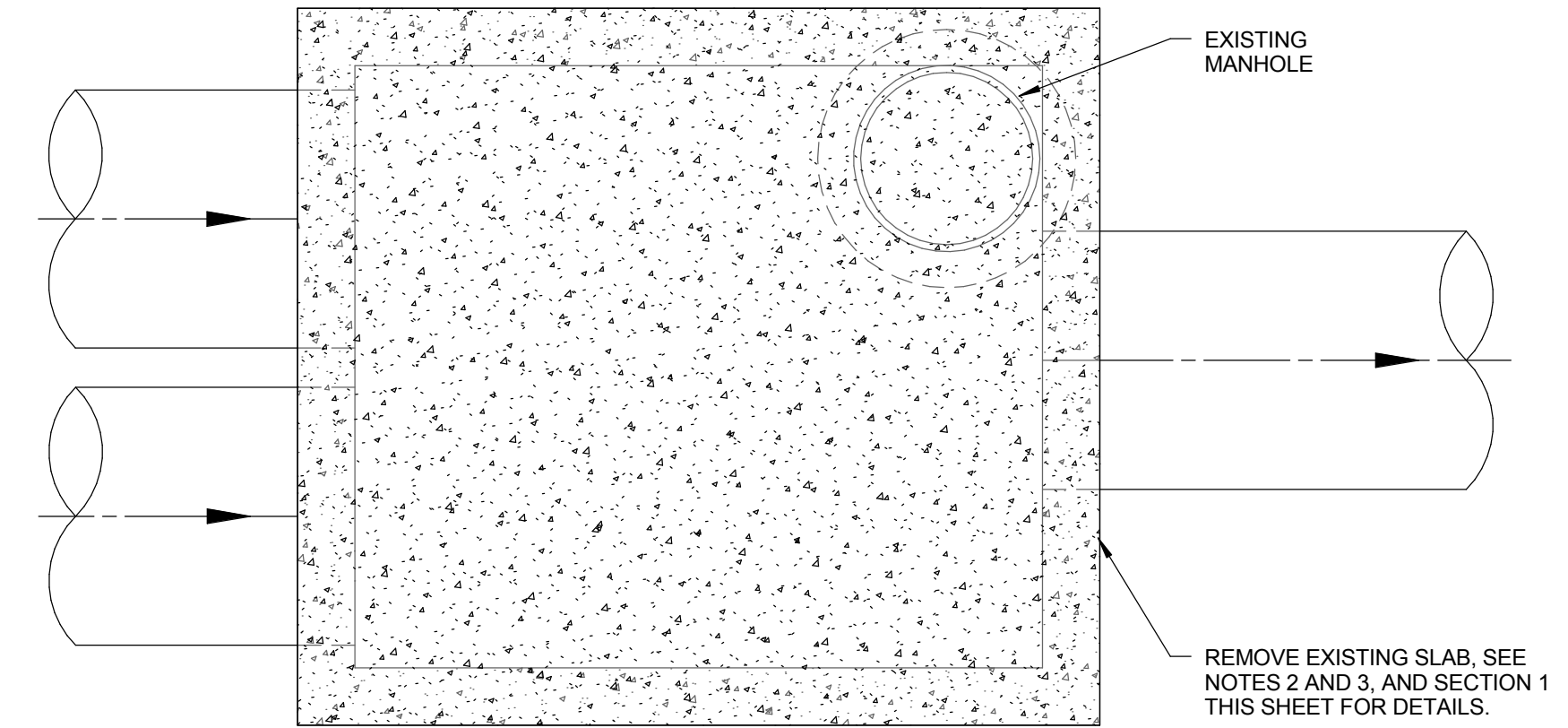
1. COORDINATE SIZE, LOCATION AND PLACEMENT OF EMBEDDED ITEMS (PLATES, HARDWARE, PIPE SLEEVES, ETC.) WITH ALL RESPECTIVE TRADES.
2. EMBEDDED ITEMS SHALL BE SECURELY PLACED PRIOR TO PLACING CONCRETE.
3. CORING OR CUTTING CONCRETE SHALL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER.
4. IF DRILLING OR CUTTING INTO HARDENED CONCRETE IS REQUIRED, FIELD LOCATE REINFORCEMENT WITH A REBAR DETECTOR TO AVOID DAMAGING THE REBAR.
5. UNLESS NOTED OTHERWISE, PROVIDE CLEAR COVER TO REINFORCING BARS AS SCHEDULED, SEE SCHEDULE THIS SHEET.
6. UNLESS NOTED OTHERWISE, MINIMUM LAP SPlice LENGTH, IN INCHES, SHALL BE AS SCHEDULED, SEE SCHEDULE THIS SHEET.
7. UNLESS NOTED OTHERWISE, PROVIDE 3/4" CHAMFERS ON ALL EXPOSED EDGES.
8. UNLESS NOTED OTHERWISE, DOWELS AND BENT BARS TO HAVE STANDARD ACI/CRSI 90 OR 180 DEGREE BEND AS INDICATED.
9. OPENINGS REQUIRED FOR SLABS AND WALLS REQUIRE ADDITIONAL REINFORCING AROUND THE PERIMETER AS INDICATED ON THE PLANS.
10. ALL STEEL REINFORCING SHALL BE GRADE 60 AND BE EPOXY COATED. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 905 OF THE 2012 MDO STANDARD SPECIFICATIONS FOR CONSTRUCTION.



NOTE:  
 SEE MH 71-70049 PROPOSED PLAN  
 FOR DIMENSIONS AND LOCATIONS OF  
 EXISTING SLAB, WALLS, AND PIPES.

### MH 71-70049 EXISTING PLAN

SCALE: 1/2" = 1'-0"



NOTE:  
 SEE MH 71-69895 PROPOSED PLAN  
 FOR DIMENSIONS AND LOCATIONS OF  
 EXISTING SLAB, WALLS, AND PIPES.

### MH 71-69895 EXISTING PLAN

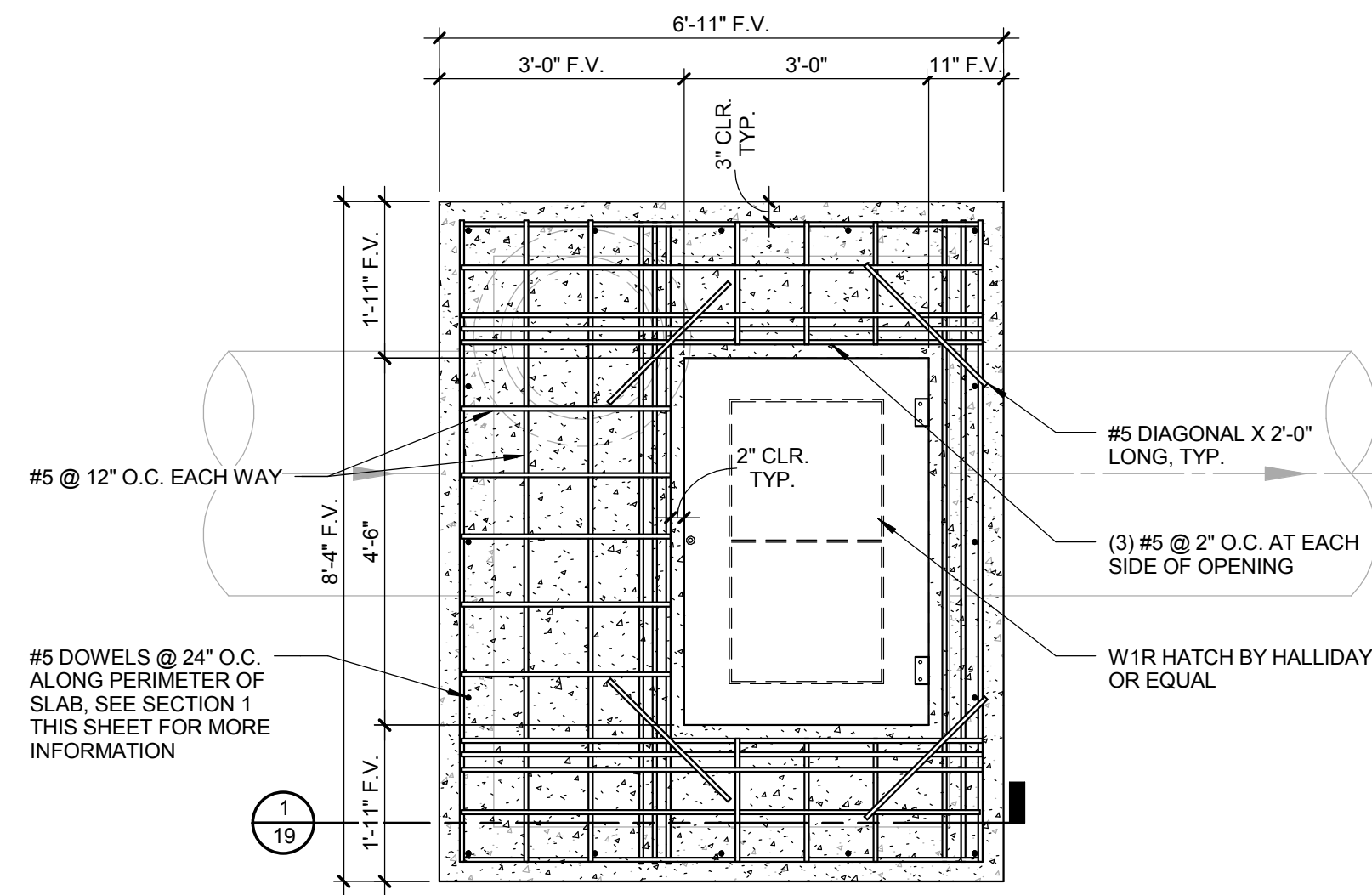
SCALE: 1/2" = 1'-0"

## SCHEDULES / DIAGRAMS

| CONCRETE REINFORCEMENT COVER REQUIREMENTS                                       |        |
|---|--------|
| CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:                         | 3"     |
| CONCRETE EXPOSED TO EARTH, LIQUID, WEATHER OR CAST AGAINST A CONCRETE WORK MAT: | 2"     |
| SLABS AND JOISTS:   | 2"     |
| BEAMS AND COLUMNS:  | 2"     |
| STIRRUPS, SPIRALS, AND TIES:  | 2 1/2" |
| PRIMARY REINFORCEMENT:  | 2"     |
| WALLS:  | 2"     |
| FOOTINGS AND BASE SLABS:  | 2"     |
| FORMED SURFACES:  | 2"     |
| TOP OF FOOTINGS AND BASE SLABS:   | 2"     |

| BAR SIZE | EPOXY COATED CONCRETE REINFORCEMENT LAP SPlice SCHEDULE (INCHES) |        |               |        |
|----------|--|--------|---------------|--------|
|          | BEAMS & COLUMNS  |        | WALLS & SLABS |        |
|          | TOP BARS   | OTHERS | TOP BARS      | OTHERS |
| 3        | 56   | 50     | 20            | 16     |
| 4        | 68   | 60     | 26            | 19     |
| 5        | 78   | 69     | 33            | 24     |
| 6        | 88   | 77     | 36            | 34     |
| 7        | 147  | 130    | 52            | 51     |
| 8        | 158  | 140    | 59            | 56     |
| 9        | 168  | 149    | 65            | 64     |
| 10       | 176  | 155    | 73            | 71     |
| 11       | 184  | 162    | 81            | 77     |

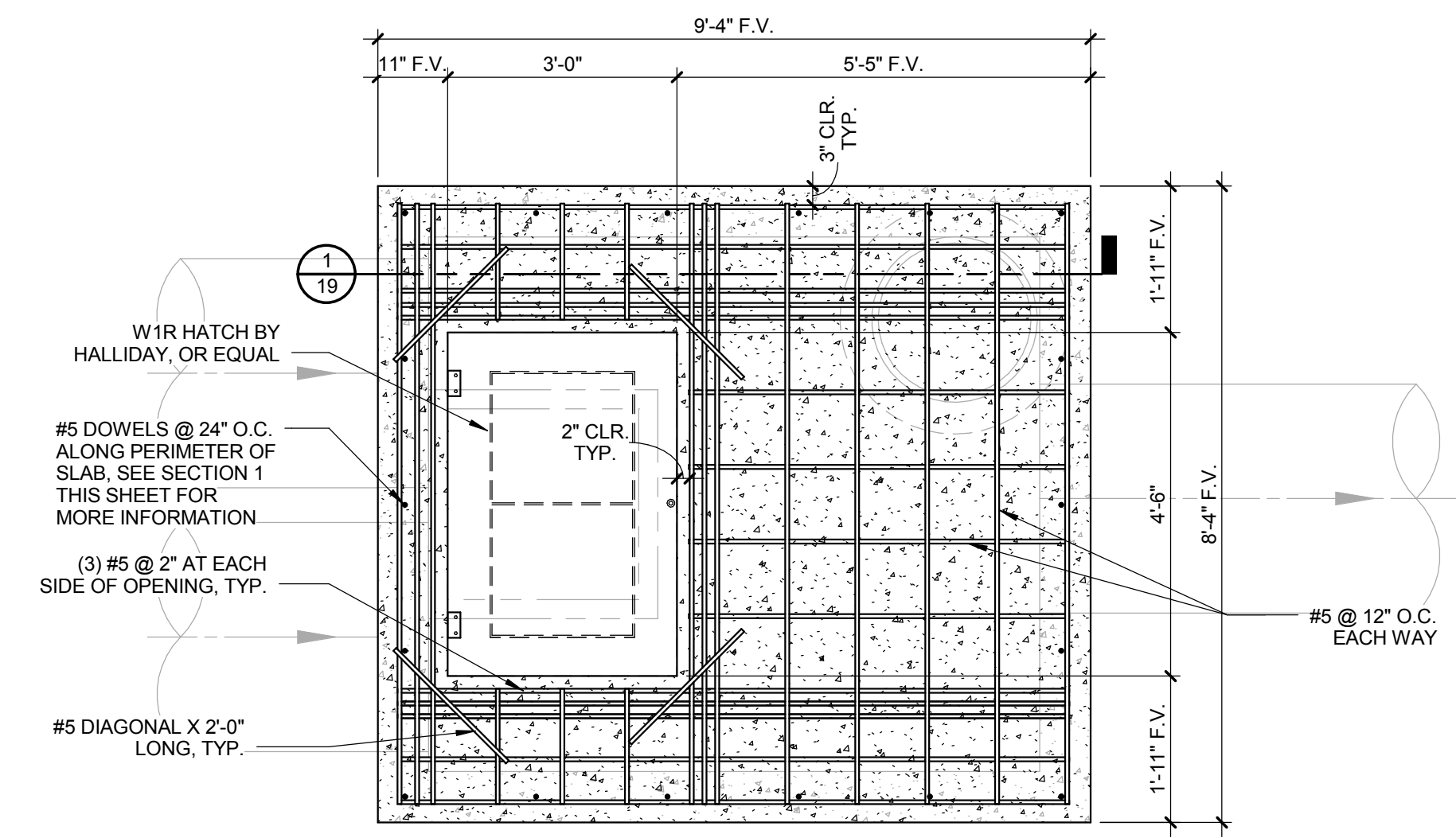
NOTE:  
 TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST BELOW THE BAR. HORIZONTAL BARS IN WALLS ARE TOP BARS. VERTICAL BARS ARE OTHER BARS.



NOTE:  
 THE HATCH AND SLAB ARE NOT DESIGNED TO CARRY AN H-20 WHEEL LOAD.

### MH 71-70049 PROPOSED PLAN

SCALE: 1/2" = 1'-0"



#### NOTES:

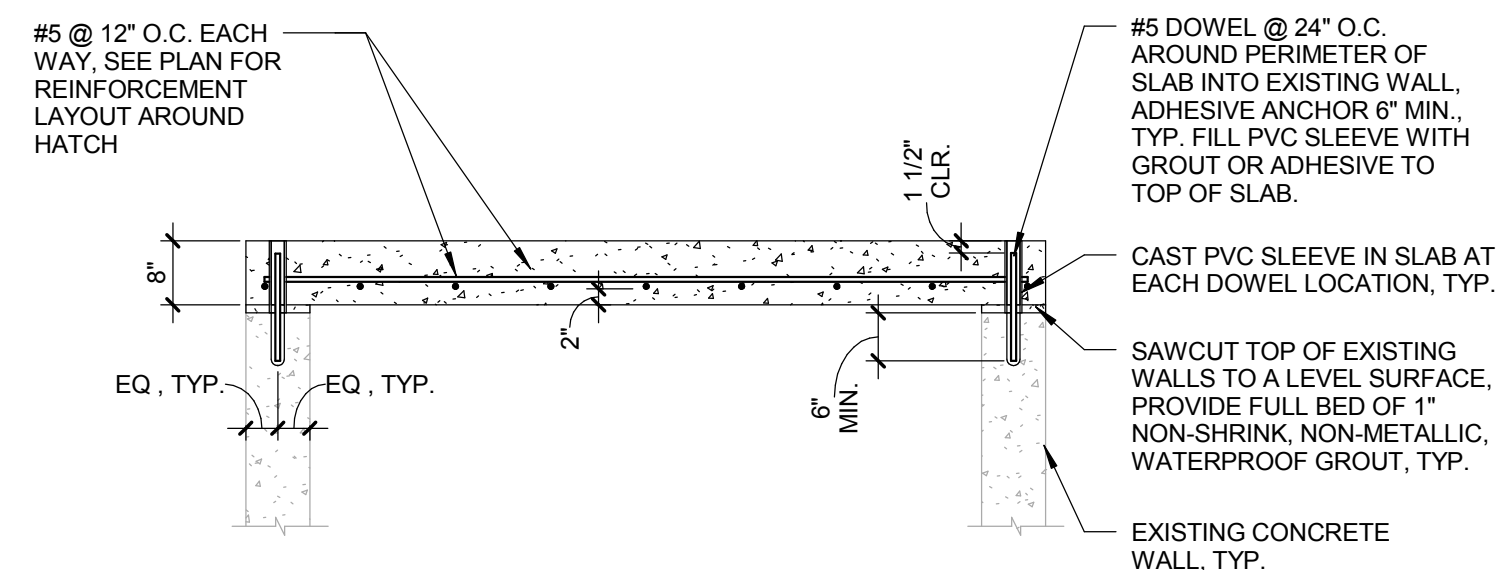
1. THE SLAB IS DESIGNED TO CARRY AN H-20 WHEEL LOAD. THE HATCH HAS A 300 PSF LOAD RATING.
2. ALL EXISTING PIPE LOCATIONS WITH RESPECT TO THE CHAMBER ARE UNKNOWN. FIELD VERIFY.

### MH 71-69895 PROPOSED PLAN

SCALE: 1/2" = 1'-0"

#### NOTES

1. CONTRACTOR SHALL PERFORM INITIAL CLEANING AND SHALL ALLOW FOR ENGINEER INSPECTION BEFORE REMOVING EXISTING ROOF SLAB OF CHAMBER MH 71-69895.
2. PROVIDE TEMPORARY BRACING AT THE TOP OF CHAMBER WALLS BEFORE REMOVING EXISTING SLAB.
3. SAWCUT AT EXISTING SLAB AND WALL JOINT FOR REMOVAL OF EXISTING SLAB. PROVIDE LEVEL SURFACE AT TOP OF EXISTING WALLS FOR INSTALLATION OF NEW SLAB, SEE SECTION 1 THIS SHEET.
4. DESIGN SHOWN IS FOR THE FINAL INSTALLED CONDITION OF A PRECAST SLAB. THE CONTRACTOR IS RESPONSIBLE TO EVALUATE AND DESIGN THE NEW CHAMBER SLAB FOR LIFTING REQUIREMENTS AND STRESSES. LIFTING POINTS SHALL NOT PENETRATE SLAB THICKNESS.
5. CUT REINFORCING STEEL AROUND SLAB OPENING 2" SHORT OF OPENING. PROVIDE ADDITIONAL REINFORCING AROUND OPENING AS NOTED ON PLAN.
6. F.V. DENOTES FIELD VERIFY.



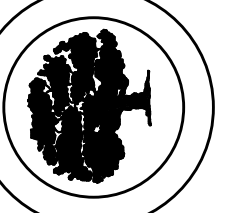
### SECTION 1

SCALE: 1/2" = 1'-0"



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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR  
 NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
 CHAMBER ROOF STRUCTURAL DETAILS

|                     |             |
|---------------------|-------------|
| SCALE: 1/2" = 1'-0" | DRAWING No. |
|                     | 2016-026-D3 |

SHEET No.

**GENERAL**  
 NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6430, EXT. 42592.

- THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.
- ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, CITY ORDINANCE CHAPTER 63, CITY OF ANN ARBOR STANDARDS DIVISION VII, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.
- EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR WATERWAYS.
- ALL MUD/SOIL TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET SWEEPER, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR, WITHIN FOUR (4) HOURS OF BEING SO ORDERED.
- FINAL RESTORATION OF ALL DISTURBED AREAS, INCLUDING SEED, FERTILIZER AND EROSION CONTROL MULCH BLANKET AND/OR SOD, SHALL BE PERFORMED BY THE CONTRACTOR PRIOR TO FINAL COMPLETION.
- CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.
- SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
- PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR DUST PALLIATIVE AS REQUIRED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE GRANTED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.
- THE CONTRACTOR SHALL NOT GRADE ONTO ADJACENT PROPERTIES. SILT AND PROTECTIVE FENCE SHALL BE INSTALLED AND MAINTAINED TO PREVENT GRADING, EROSION AND SEDIMENTATION INTO THE ADJACENT PROPERTIES.
- TREE PROTECTION FENCING MUST REMAIN INTACT UNTIL RESTORATION OF THE SITE IS COMPLETE.
- DISTANCE TO NEAREST WATER OF THE STATE: 50 FEET TO HURON RIVER.
- THE CONTRACTOR SHALL TAKE MEASURES TO REDUCE AND CONTROL EMISSIONS AND NOISE FROM CONSTRUCTION EQUIPMENT AND VEHICLES USED ON-SITE AND DURING TRANSPORTING TO/FROM SITE.

**SEQUENCE OF EROSION CONTROL MEASURES:**

- THE CONTRACTOR IS TO SUBMIT TO THE ENGINEER, A SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION CONTROL MEASURES FOR REVIEW, COMMENT AND APPROVAL. THIS SCHEDULE IS TO INCLUDE INSPECTION AND REPAIR OF ALL TEMPORARY EROSION CONTROL MEASURES DAILY AND WITHIN 24 HOURS OF A STORM EVENT.

**SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:**

- INSTALL SILT FENCE, TREE PROTECTION FENCING, SAFETY/CONSTRUCTION FENCING, MUD MATS, CULVERT SEDIMENT TRAPS, AND ALL OTHER TEMPORARY SOIL EROSION CONTROLS, PRIOR TO ANY CLEARING OR EARTH MOVING OPERATION.
- REMOVE TREES MARKED FOR REMOVAL, REMOVE DOWNED TREES WITHIN WORK ZONES AND STAGING AREAS, CLEAR BRUSH WITHIN CLEARING LIMITS AND TRIM BRANCHES. TREE AND BRANCH TRIMMING SHALL BE APPROVED BY THE ENGINEER AND UNIVERSITY OF MICHIGAN SOIL EROSION AND SEDIMENTATION CONTROL OFFICIALS PRIOR TO BEGINNING WORK.
- STRIP AND STOCKPILE TOPSOIL. STABILIZE STOCKPILE WITH SILT FENCE AS REQUIRED. ADDITIONAL MEASURES MAY BE REQUIRED TO MINIMIZE EROSION. STOCKPILE TOPSOIL IN AREAS APPROVED BY THE ENGINEER. CONTRACTOR SHALL SALVAGE AND RE-USE EXISTING TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
- PERFORM CLEANING, TELEVISIONING AND SEWER AND SIPHON REHABILITATION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- COMPLETE WORK OPERATIONS IN ACCORDANCE WITH CONSTRUCTION SEQUENCE CONTAINED WITHIN THE SPECIAL PROVISION ENTITLED "CONSTRUCTION SEQUENCING" CONTAINED IN THE CONTRACT DOCUMENTS.
- CONTINUALLY MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES, AS REQUIRED TO ALLOW DRAINAGE AND SEDIMENT REMOVAL. REMOVE ANY ACCUMULATED SEDIMENT IMMEDIATELY.
- GRADE, RE-SPREAD EXISTING TOPSOIL REMOVING ROCKS OVER 2" IN DIAMETER, PLACE ADDITIONAL TOPSOIL (AS NEEDED), PLACE PERMANENT SEEDING, AND FURNISH, INSTALL AND ANCHOR EROSION CONTROL MULCH BLANKET IN ALL DISTURBED AREAS.
- REFER TO DETAILED SPECIFICATION "PROJECT CLEAN-UP & RESTORATION, SPECIAL" FOR PERMANENT SITE STABILIZATION.

- REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE ENGINEER AND UNIVERSITY OF MICHIGAN'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIALS.

- ALL TEMPORARY SOIL EROSION CONTROL MEASURES, INCLUDING TEMPORARY AGGREGATE FOR TYPICAL WORK OR STAGING AREAS, MUST BE REMOVED, WITH ENGINEERS APPROVAL, PRIOR TO FINAL INSPECTION.

NOTE: THIS SEQUENCE IS FOR INFORMATION ONLY. IT IS INTENDED TO SHOW THE SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THEIR OWN DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE TO THE ENGINEER FOR REVIEW, COMMENT, AND APPROVAL.

**TEMPORARY SEEDING:**

- THE CONTRACTOR SHALL TEMPORARY TOP SOIL AND SEED DISTURBED AREAS AS REQUIRED AND AS DIRECTED BY THE ENGINEER AND UNIVERSITY OF MICHIGAN SOIL EROSION AND SEDIMENTATION CONTROL OFFICIALS OR ENGINEER.
- THE CONTRACTOR SHALL PERMANENT SEED DISTURBED AREAS AS INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
- ANY DISTURBED AREA NOT PAVED, SEEDED OR MULCHED, BY SUBSTANTIAL COMPLETION IS TO BE TEMPORARILY STABILIZED PER SPECIFICATIONS.

THE ESTIMATED COST OF SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, TEMPORARY SEEDING, AND MULCH = \$25,000

ESTIMATE OF EXCAVATION AND FILL FROM EXISTING TO FINAL GRADE:  
 • EXCAVATION = 0 CY, FILL = 0 CY


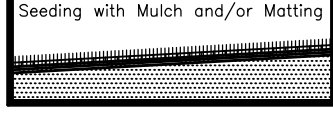

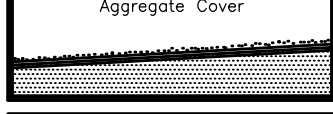
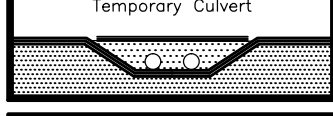
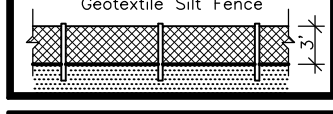
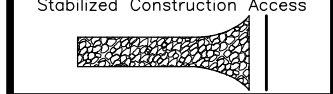
- ON SITE SOILS PER THE USDA SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN:
- BnB – BOYER LOAMY SAND, 1 TO 6 PERCENT SLOPES
  - Fd – FILL LAND
  - FoC – FOX SANDY LOAM, 6 TO 12 PERCENT SLOPES
  - MmC – MIAMI LOAM, 6 TO 12 PERCENT SLOPES
  - So – SLOAN SILT LOAM, WET
  - W – WATER
  - WaA – WASEPI SANDY LOAM – DRAINAGEWAYS ON VALLEY TRAINS, FARMLAND OF LOCAL IMPORTANCE. 0 TO 4 PERCENT SLOPES.

IMPERVIOUS PROJECT AREA  
 PRIOR TO CONSTRUCTION VS. POST CONSTRUCTION = NO CHANGE

AREA OF PROPOSED DISTURBANCE = 0.50 ACRES (~21780 SF)

SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.

**MDEQ SOIL EROSION AND SEDIMENTATION CONTROL MEASURES**

| KEY | DETAIL  | CHARACTERISTICS  |
|-----|---|--|
| 1   |  | Topsoil may be stockpiled above borrow areas to act as a diversion. Stockpile should be temporarily seeded.  |
| 6   |  | Facilitates establishment of vegetative cover. Effective for drainageways with low velocity. Easily placed in small quantities by inexperienced personnel. Should include prepared topsoil bed. See mulch Detail on Detail Sheet 23. |
| 10  |  | Used alone to protect exposed areas for short periods. Protects soil from impact of falling rain. Preserves soil moisture and protects germinating seed from temperature extremes.   |
| 14  |  | Stabilizes soil surface, thus minimizing erosion. Permits construction traffic in adverse weather. May be used as part of permanent base construction of paved areas.  |
| 42  |  | Eliminates stream turbulence and turbidity. Provides unobstructed passage for fish and other water life. Capacity for normal flow can be provided with storm water flowing over roadway.   |
| 54  |  | Use geotextile and posts or poles. May be constructed or prepackaged. Easy to construct and locate as necessary.   |
| 57  |  | Used at every point where construction traffic enters or leaves a construction site. See Anti-Tracking Pad Detail on Detail Sheet 23.  |

STRIPPING AND STOCKPILING TOPSOIL WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

SEEDING WILL BE PAID FOR AS "SEEDING, FESCUE LAWN MIXTURE" AND "SEEDING, MESIC WOODLAND MIXTURE". MULCHING WILL BE PAID FOR AS "MULCH BLANKET, HIGH VELOCITY".

SHORT TERM MULCHING WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE PAY ITEM "MULCH BLANKET, HIGH VELOCITY".

AGGREGATE COVER WILL BE PAID FOR AS "EROSION CONTROL, AGGREGATE COVER".

TEMPORARY CULVERT WILL BE PAID FOR AS "CULV, TEMP".

SILT FENCE WILL BE PAID FOR AS "EROSION CONTROL, SILT FENCE".

STABILIZED CONSTRUCTION ACCESS WILL BE PAID FOR AS "EROSION CONTROL, AGGREGATE COVER".

| SCHEDULE FOR SESC MEASURES            |              |             |
|---------------------------------------|--------------|-------------|
| CONTROL MEASURE                       | INSTALL DATE | REMOVE DATE |
| TOPSOIL STRIPPING & STOCKPILING       | JAN/2017     | MAY/2017    |
| PROTECTIVE FENCE                      | DEC/2016     | MAY/2017    |
| SILT FENCE                            | JAN/2017     | MAY/2017    |
| AGGREGATE COVER AND TEMPORARY CULVERT | JAN/2017     | MAY/2017    |
| MULCHING                              | MAR/2017     | MAY/2017    |
| SEEDING W/ MULCH                      | MAY/2017     | -           |
| STABILIZED CONSTRUCTION ACCESS        | DEC/2016     | MAY/2017    |



| CHECKED | DRAWN | DATE       | DESCRIPTION    | REV. |
|---------|-------|------------|----------------|------|
|         |       | 10-18-2016 | ISSUED FOR BID |      |

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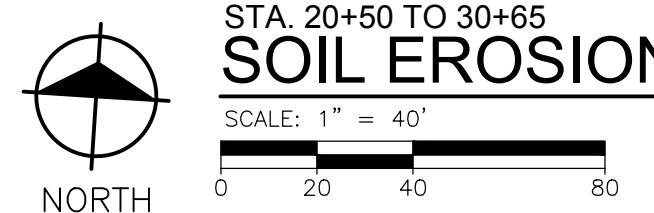
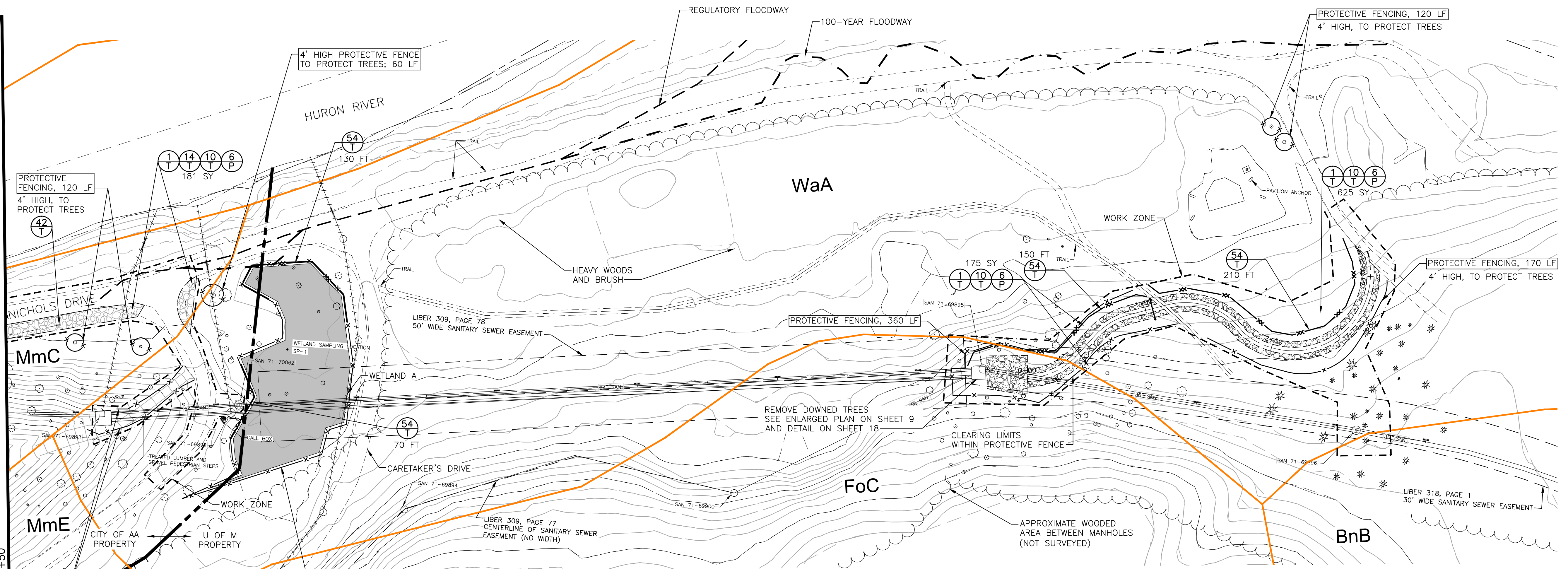


**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
 NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
 SOIL EROSION AND SEDIMENTATION CONTROL NOTES

SCALE PLAN: 1" = 40'  
 DRAWING No.  
 2016-026-SESC1



SEE 21  
MATCH LINE STA. 20+50



STA. 20+50 TO 30+65  
**SOIL EROSION AND SEDIMENTATION CONTROL PLAN**

| CONSTRUCTION QUANTITIES |      |                                  |
|-------------------------|------|----------------------------------|
| QUANTITY                | UNIT | DESCRIPTION                      |
| 560                     | FT   | EROSION CONTROL, SILT FENCE      |
| 981                     | SY   | TOPSOIL SURFACE, FURN, 4 INCH    |
| 981                     | SY   | MULCH BLANKET, HIGH VELOCITY     |
| 181                     | SY   | EROSION CONTROL, AGGREGATE COVER |
| 1525                    | LF   | PROTECTIVE FENCING               |
| 1                       | EA   | CULV. TEMP                       |

- NOTES**
- SIGNIFICANT TREES EXIST IN ALL AREAS WITHIN THE PROJECT LIMITS. ALL TREES SHALL BE PRESERVED AND PROTECTED AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS, UNLESS OTHERWISE SHOWN FOR REMOVAL.
  - INSTALL SILT FENCE BETWEEN PROTECTIVE FENCE AND WETLAND WHERE WETLAND BORDERS DRIVES, TRAILS, AND WORKS ZONE, TO EXTENT SHOWN AND AS DIRECTED BY THE ENGINEER.

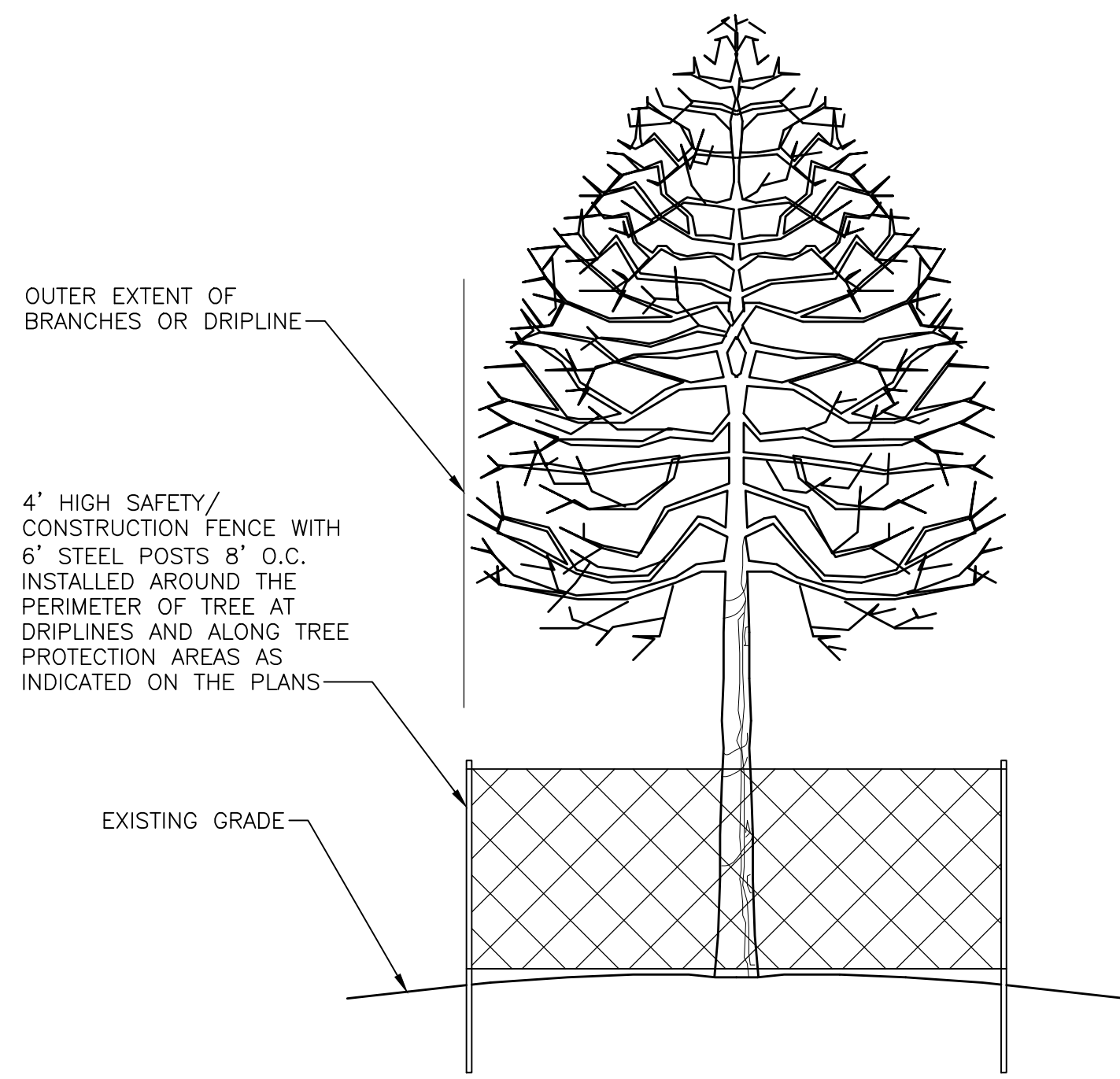
| REV. | DESCRIPTION    | DATE       | DRAWN | CHECKED |
|------|----------------|------------|-------|---------|
|      | ISSUED FOR BID | 10-18-2016 |       |         |

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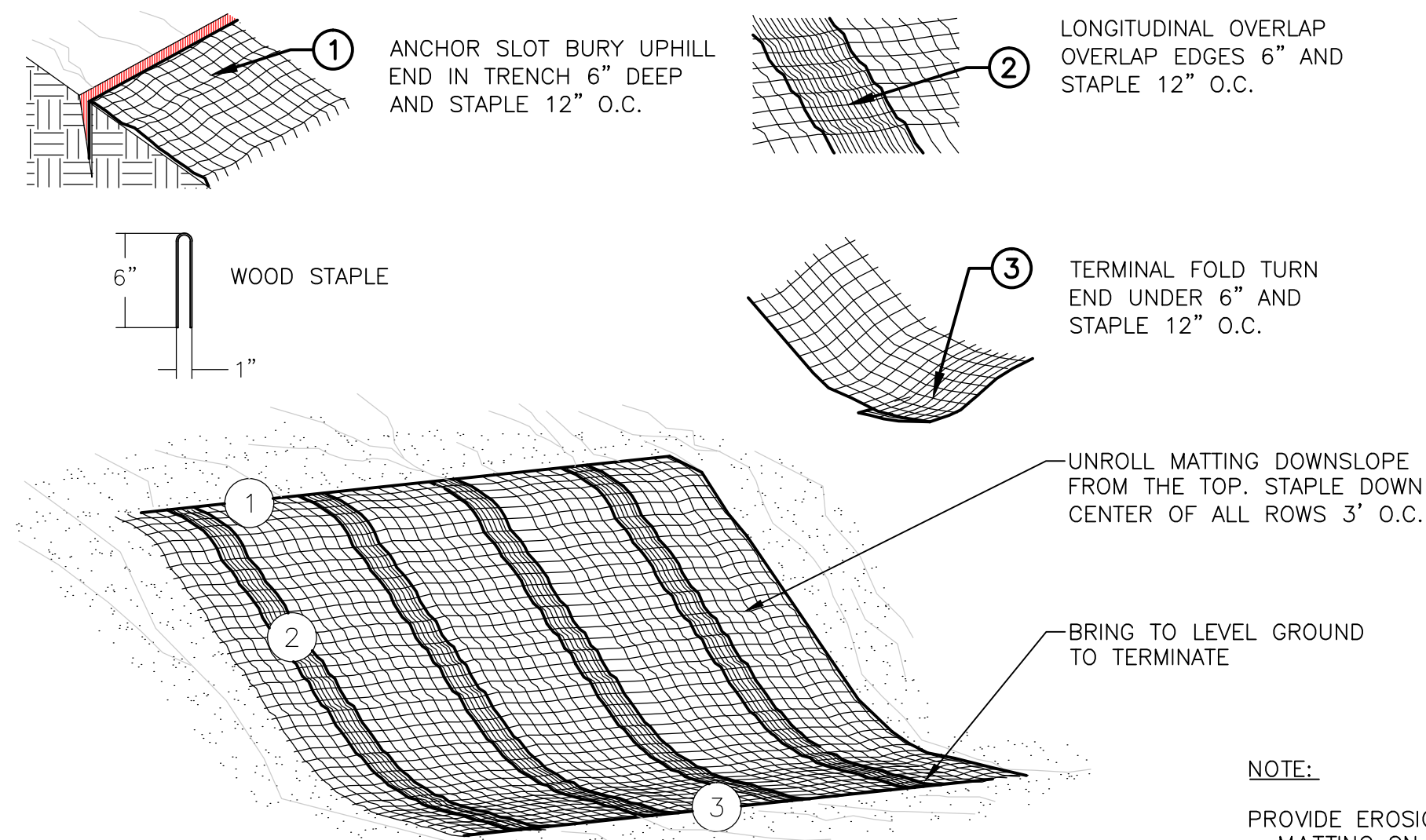
**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
SOIL EROSION AND SEDIMENTATION CONTROL PLAN - STA. 20+50 TO 30+65

SCALE PLAN: 1" = 40'  
DRAWING No. 2016-026-SESC3

SHEET No. 22 OF 34



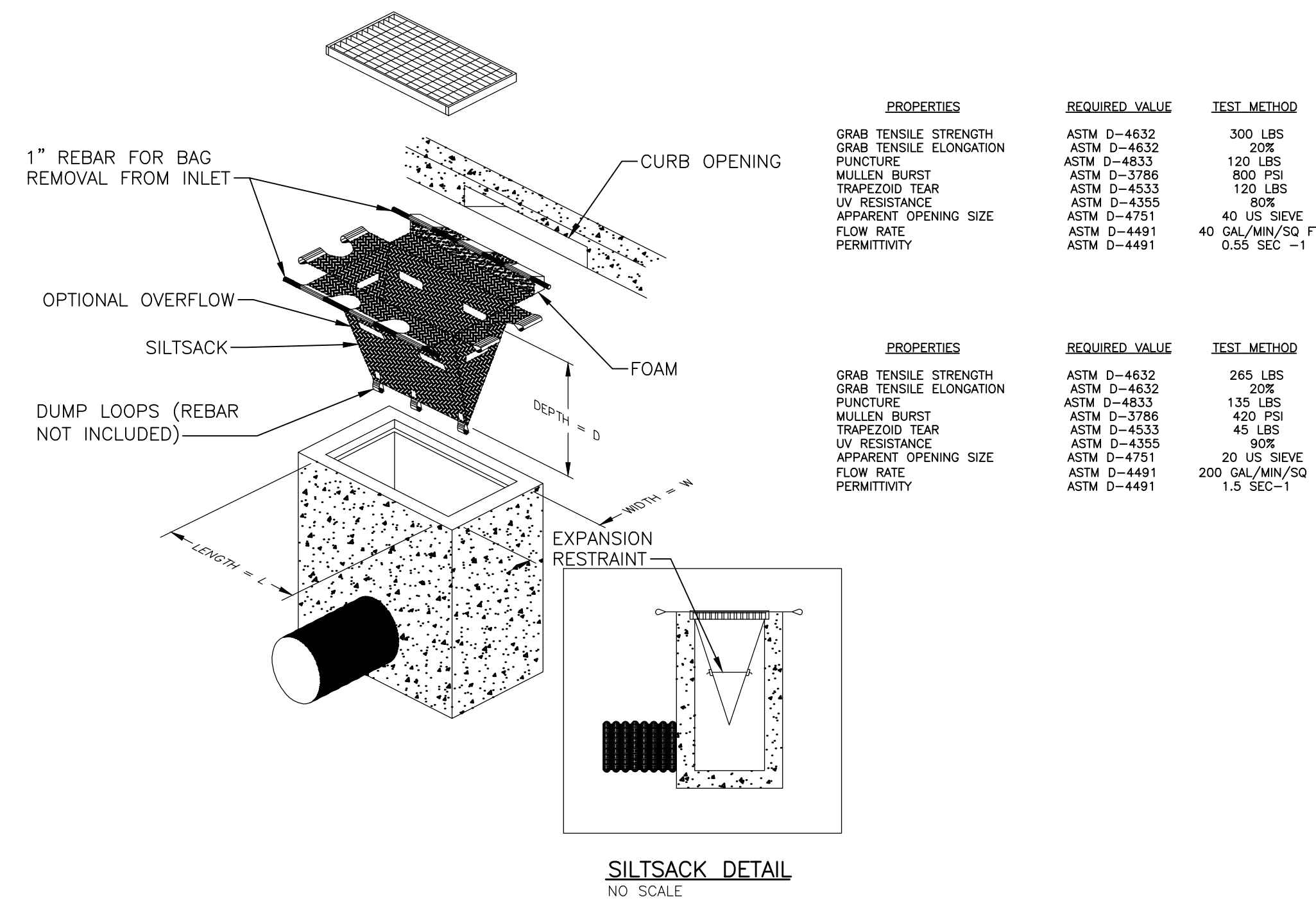
**TREE PROTECTION DETAIL**  
NO SCALE  
02990-07



**MULCH BLANKET DETAIL**  
NO SCALE

- NOTES:
1. APPLIES TO ALL AREAS TO BE PERMANENTLY RESTORED WITH GRASS OR OTHER SEED MIXTURE, OR AS CALLED FOR ON THE PLANS.
  2. SEE SPECIFICATIONS FOR MORE DETAILS.

NOTE:  
PROVIDE EROSION CONTROL MATTING ON ALL DISTURBED AREAS AND AS DIRECTED BY THE ENGINEER.

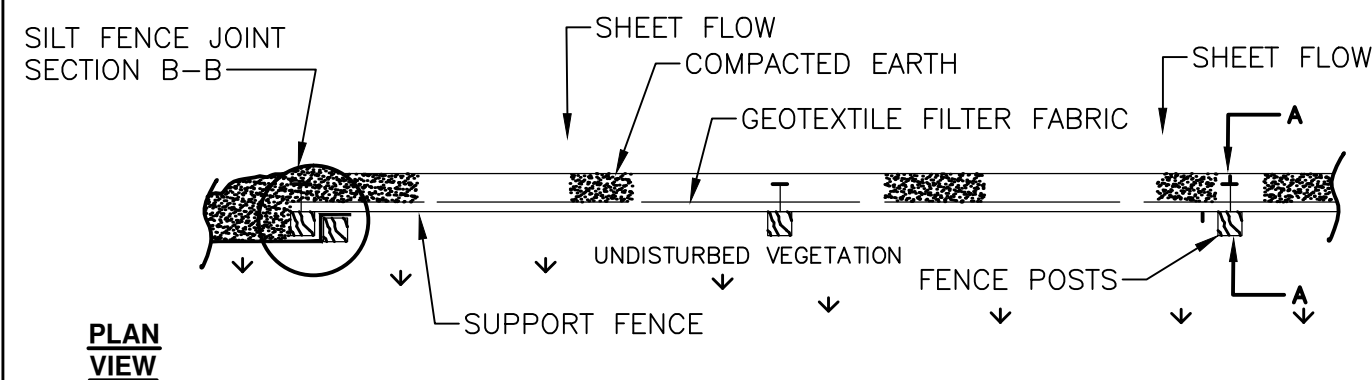


**SILTSACK DETAIL**  
NO SCALE

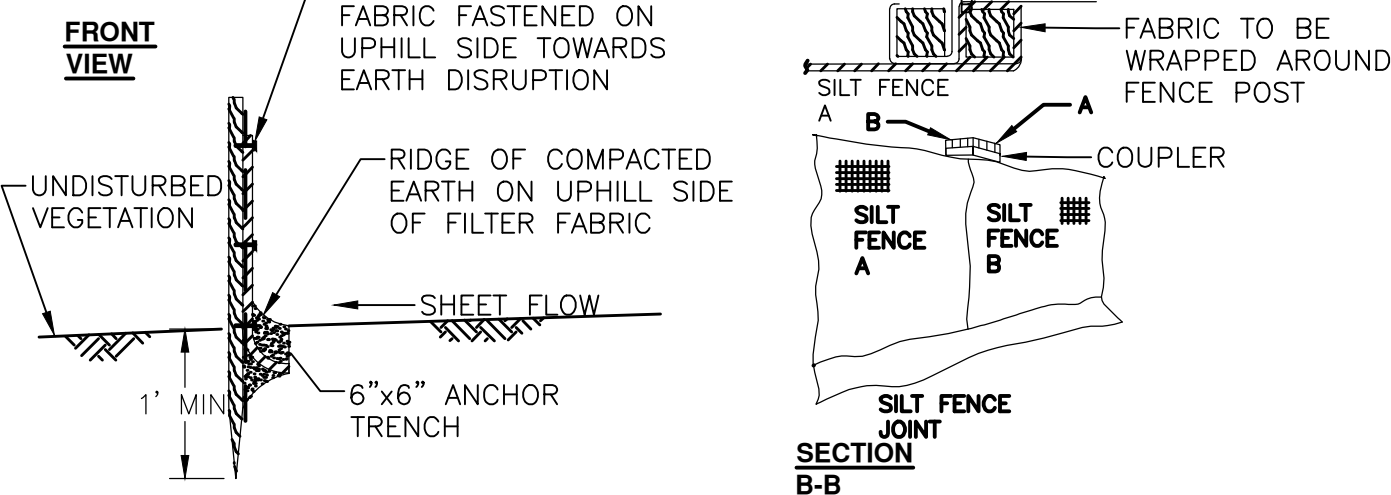
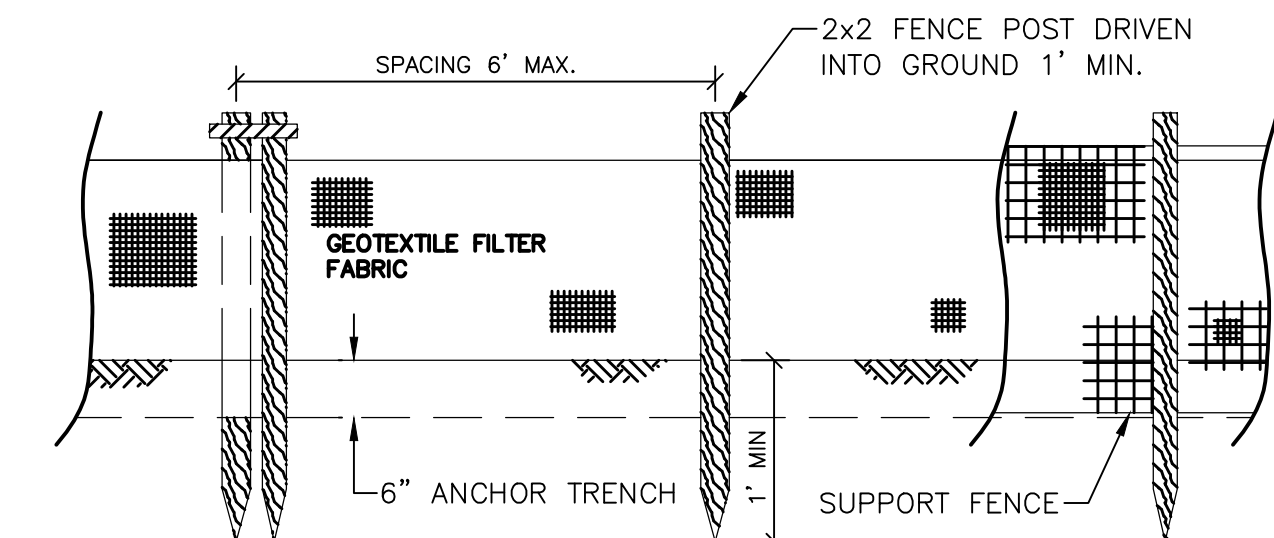
| PROPERTIES              | REQUIRED VALUE | TEST METHOD      |
|-------------------------|----------------|------------------|
| GRAB TENSILE STRENGTH   | ASTM D-4632    | 300 LBS          |
| GRAB TENSILE ELONGATION | ASTM D-4632    | 20%              |
| PUNCTURE                | ASTM D-4833    | 120 LBS          |
| MULLEN BURST            | ASTM D-3786    | 800 PSI          |
| TRAPEZOID TEAR          | ASTM D-4533    | 120 LBS          |
| UV RESISTANCE           | ASTM D-4355    | 80%              |
| APPARENT OPENING SIZE   | ASTM D-4751    | 40 US SIEVE      |
| FLOW RATE               | ASTM D-4491    | 40 GAL/MIN/SQ FT |
| PERMITTIVITY            | ASTM D-4491    | 0.55 SEC -1      |

| PROPERTIES              | REQUIRED VALUE | TEST METHOD       |
|-------------------------|----------------|-------------------|
| GRAB TENSILE STRENGTH   | ASTM D-4632    | 265 LBS           |
| GRAB TENSILE ELONGATION | ASTM D-4632    | 20%               |
| PUNCTURE                | ASTM D-4833    | 135 LBS           |
| MULLEN BURST            | ASTM D-3786    | 420 PSI           |
| TRAPEZOID TEAR          | ASTM D-4533    | 45 LBS            |
| UV RESISTANCE           | ASTM D-4355    | 90%               |
| APPARENT OPENING SIZE   | ASTM D-4751    | 20 US SIEVE       |
| FLOW RATE               | ASTM D-4491    | 200 GAL/MIN/SQ FT |
| PERMITTIVITY            | ASTM D-4491    | 1.5 SEC -1        |

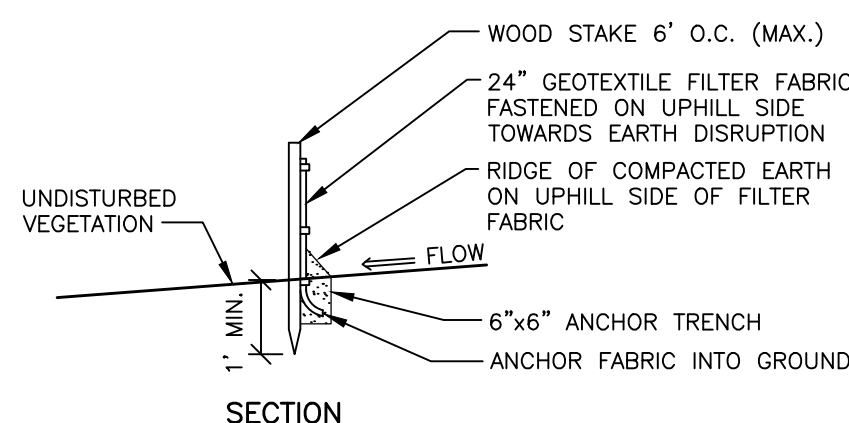


**PLAN VIEW**

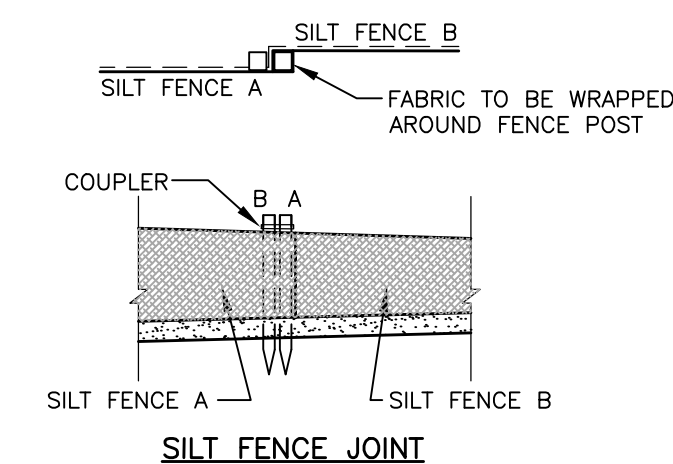


**SECTION A-A**

**SILT FENCE SD-EC-3**  
NO SCALE



**SECTION**

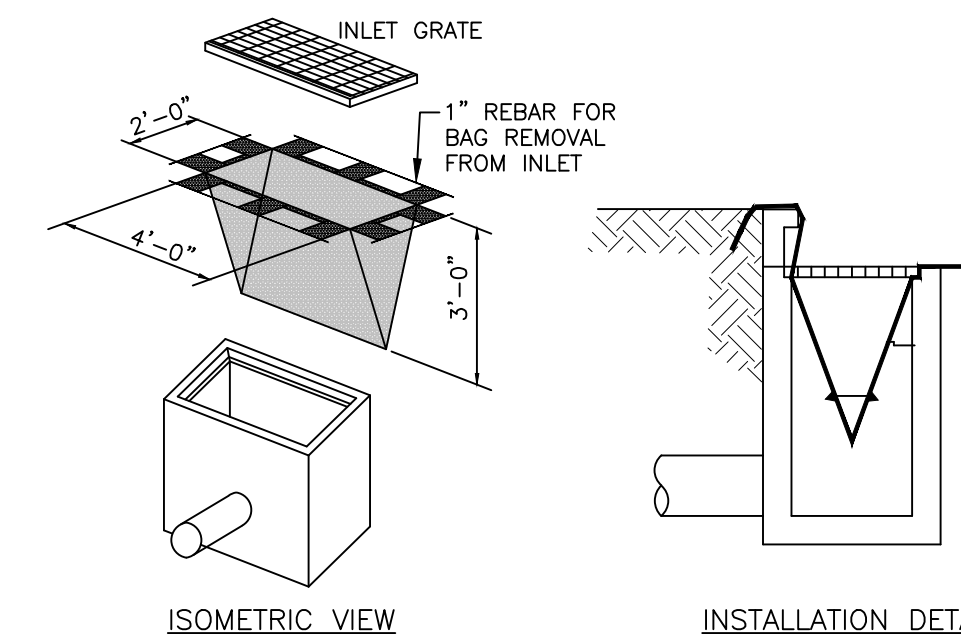


**SILT FENCE JOINT**

**NOTES:**

1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE GROUND COVER IS REMOVED. CLEARING, GRUBBING, AND STUMPING CAN OCCUR BEFORE SILT FENCE INSTALLATION IF GROUND COVER IS NOT REMOVED.
2. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS THAT MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
3. SILT FENCE SHOULD ACCOMMODATE NO MORE THAN 1/2 TO 1 ACRE OF DRAINAGE PER 100' OF FENCE AND ON SLOPES LESS THAN 1:2 (V:H).
4. ENDS OF THE SILT FENCES SHALL BE BROUGHT UPSLOPE SLIGHTLY SO THAT WATER PONDED BY THE SILT FENCE WILL BE PREVENTED FROM FLOWING AROUND THE ENDS.
5. THE TRENCH SHALL BE MADE WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE, OR OTHER SUITABLE DEVICE THAT WILL ENSURE UNIFORM TRENCH DEPTH.
6. WHERE TWO SECTIONS OF PREFABRICATED SILT FENCE ARE COMBINED INTO ONE RUN, THE END POSTS SHALL BE CONNECTED TOGETHER, NOT SIMPLY OVERLAPPED.
7. SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE, OR MORE, OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: A) AN ADDITIONAL RUN OF SILT FENCE SHALL BE PLACED UPSTREAM, B) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, C) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR D) OTHER PRACTICES SHALL BE IMPLEMENTED.
8. INSPECT FREQUENTLY AND IMMEDIATELY AFTER EACH STORM EVENT. CHECK SEVERAL TIMES DURING PROLONGED STORM EVENTS. IF NECESSARY, REPAIR IMMEDIATELY.
9. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN THE DEPOSIT REACHES APPROXIMATELY ONE-HALF OF THE HEIGHT OF THE SILT FENCE.
10. REMOVE ONLY WHEN ALL UPSTREAM VEGETATION IS ESTABLISHED AND DIRECTED BY ENGINEER.

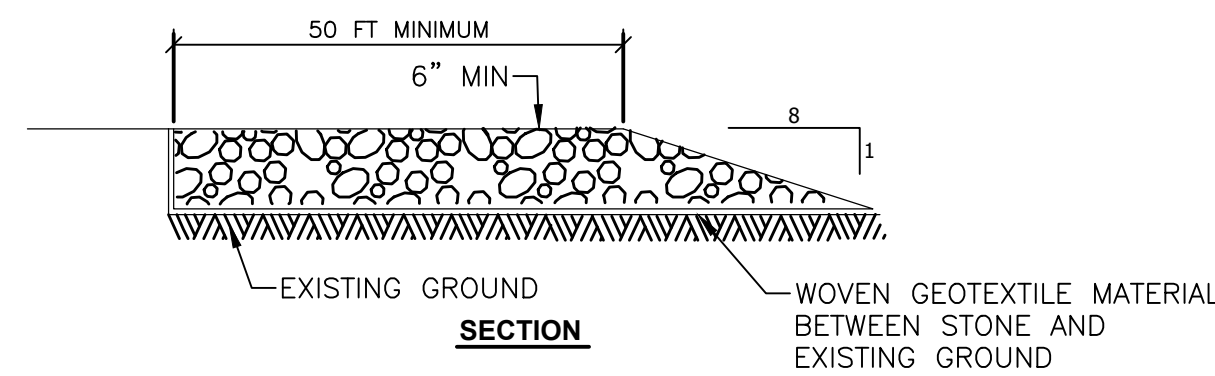
**SILT FENCE DETAIL**  
NO SCALE  
02272-01



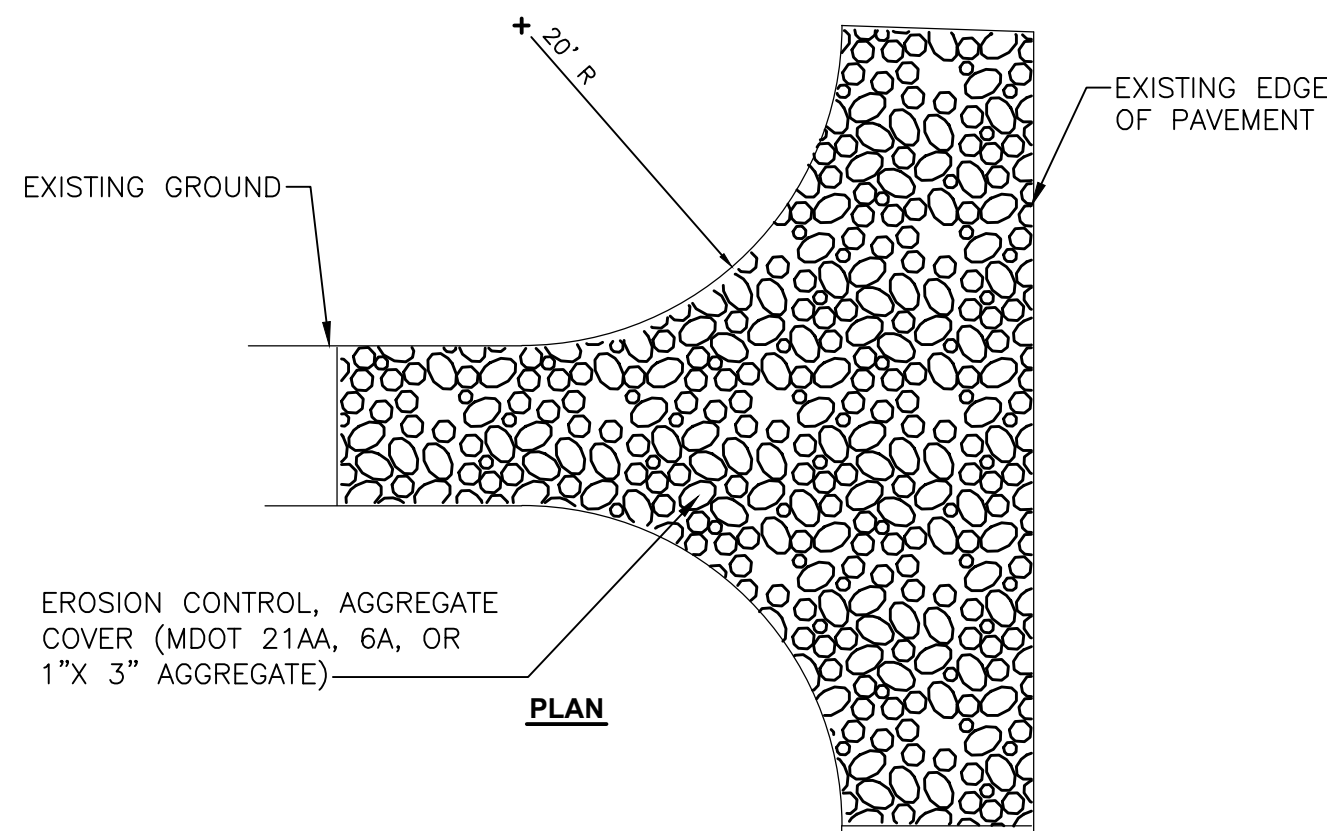
**ISOMETRIC VIEW**

**INSTALLATION DETAIL**

**INLET PROTECTION - FABRIC DROP**  
NO SCALE  
01-019



**SECTION**



**PLAN**

**STABILIZED CONSTRUCTION ACCESS**  
NO SCALE

- NOTES:
1. CONTRACTOR TO INSTALL & MAINTAIN ANTI-TRACKING PAD.
  2. WHEN AGGREGATE BECOMES SATURATED WITH FINES, CONTRACTOR TO SCARIFY AND RE-LAY AGGREGATE.
  3. ANTI-TRACKING PAD DOES NOT RELIEVE CONTRACTOR FROM SWEEPING AND CLEANING ADJACENT WALKS AND ROADS.
  4. REMOVE ANTI-TRACKING PAD AT COMPLETION OF CONSTRUCTION AND RESTORE THE AREA.



| ISSUED FOR BID | DATE       | DESCRIPTION | REV. |
|----------------|------------|-------------|------|
|                | 10-18-2016 |             |      |

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**PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR**  
NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION  
SOIL EROSION AND SEDIMENTATION CONTROL DETAILS

SCALE PLAN: 1" = 40'  
DRAWING No.  
2016-026-SESC4

# REPLACEMENT HOSPITAL PROJECT

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ANN ARBOR, MICHIGAN

OFFICE OF PLANNING, RESEARCH & DEVELOPMENT

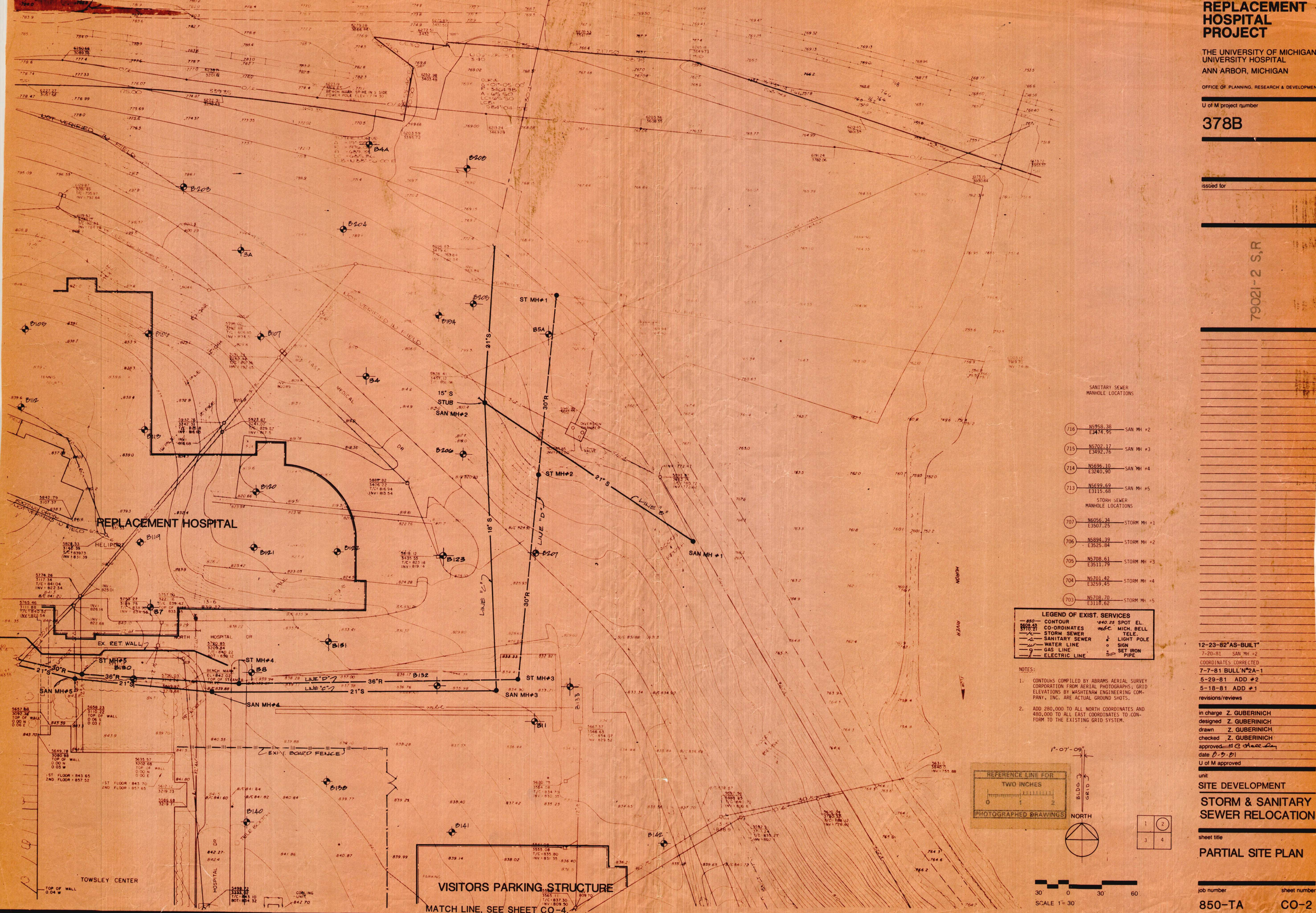
U of M project number

## 378B

issued for

79021-2 S,R

TEMPORARY 6' TYP.  
AGGREGATE SURFACE  
ROAD (16.0' WIDE)

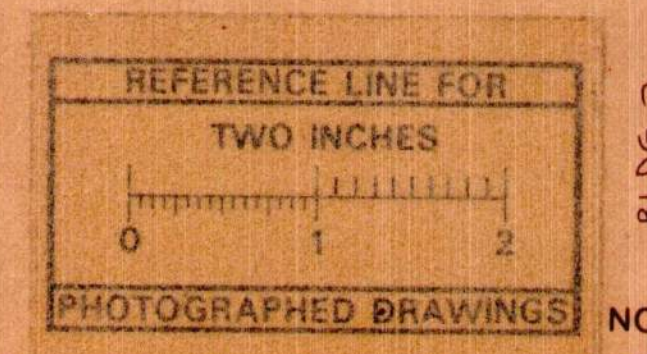


| MANHOLE NO. | ELEVATION            | TYPE        |
|-------------|----------------------|-------------|
| 716         | N5958.38<br>E3474.95 | SAN MH #2   |
| 715         | N5702.17<br>E3492.76 | SAN MH #3   |
| 714         | N5696.10<br>E3240.90 | SAN MH #4   |
| 713         | N5699.69<br>E3115.68 | SAN MH #5   |
| 707         | N6056.34<br>E3507.25 | STORM MH #1 |
| 706         | N5894.39<br>E3525.84 | STORM MH #2 |
| 705         | N5708.61<br>E3511.79 | STORM MH #3 |
| 704         | N5701.42<br>E3259.45 | STORM MH #4 |
| 703         | N5708.70<br>E3118.62 | STORM MH #5 |

**LEGEND OF EXIST. SERVICES**

|         |                |        |                    |
|---------|----------------|--------|--------------------|
| 850     | CONTOUR        | 840.25 | SPOT EL.           |
| 850B-43 | CO-ORDINATES   | mic    | MICH. BELL TELE.   |
| 8716-21 | STORM SEWER    | o      | LIGHT POLE         |
| —       | SANITARY SEWER | o      | SIGN SET IRON PIPE |
| —       | WATER LINE     |        |                    |
| —       | GAS LINE       |        |                    |
| —       | ELECTRIC LINE  |        |                    |

- NOTES:
- CONTOURS COMPILED BY ABRAMS AERIAL SURVEY CORPORATION FROM AERIAL PHOTOGRAPHS; GRID ELEVATIONS BY WASHTENAW ENGINEERING COMPANY, INC. ARE ACTUAL GROUND SHOTS.
  - ADD 280,000 TO ALL NORTH COORDINATES AND 480,000 TO ALL EAST COORDINATES TO CONFORM TO THE EXISTING GRID SYSTEM.



SCALE 1"=30'

12-23-82"AS-BUILT"  
7-20-81 SAN MH #2  
COORDINATES CORRECTED  
7-7-81 BULL" #2A-1  
5-29-81 ADD #2  
5-18-81 ADD #1  
revisions/reviews

in charge Z. GUBERNICH  
designed Z. GUBERNICH  
drawn Z. GUBERNICH  
checked Z. GUBERNICH  
approved H.C. Haseley  
date 8-9-81  
U of M approved

unit  
SITE DEVELOPMENT  
STORM & SANITARY SEWER RELOCATION

sheet title  
PARTIAL SITE PLAN

job number 850-TA  
sheet number CO-2

79021-S1,R5



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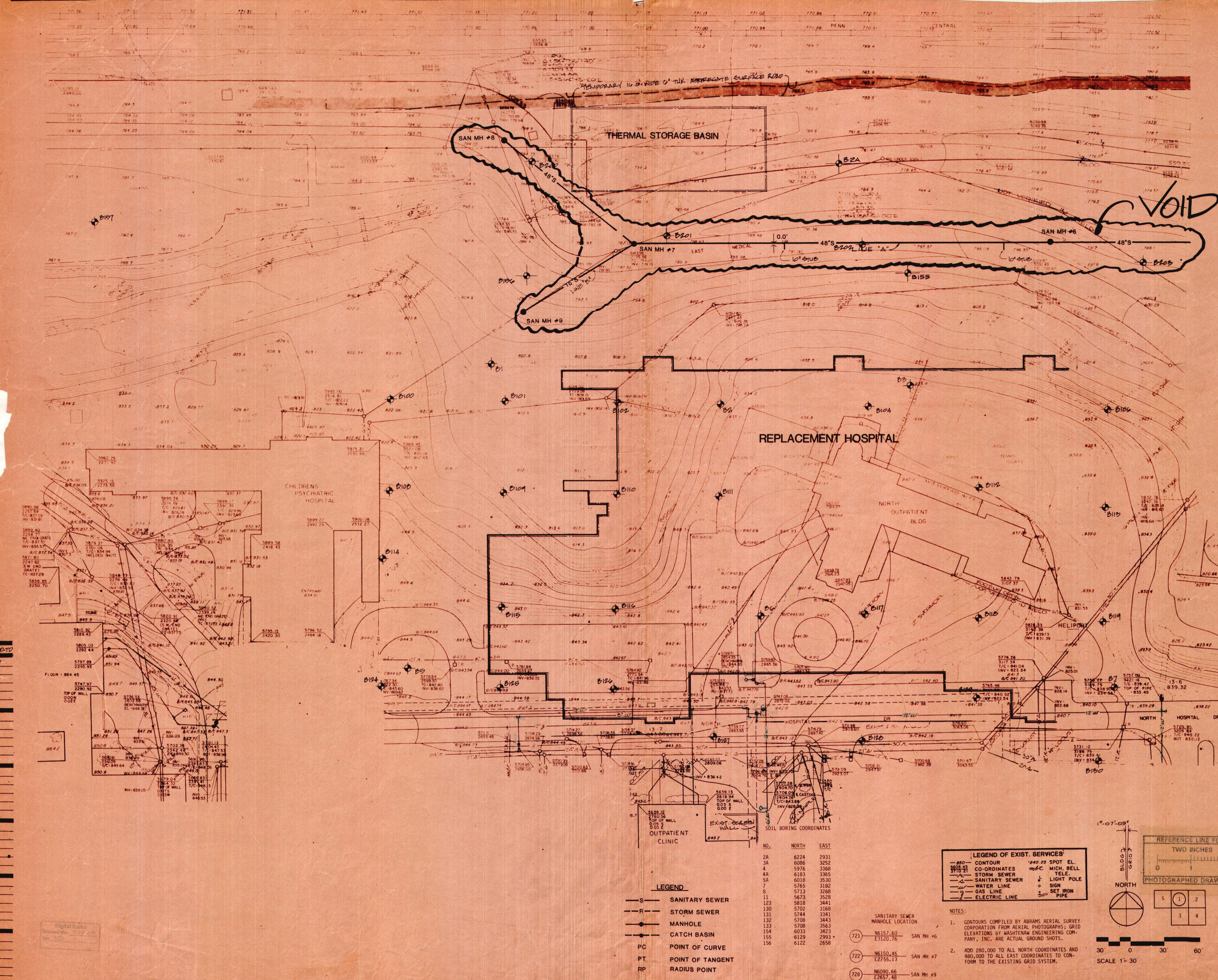
OFFICE OF PLANNING, RESEARCH & DEVELOPMENT

U of M project number

**378B**

issued for

79021-3 S.P.



12-23-82\*AS-BUILT\*  
5-29-81 ADD #2  
5-18-81 ADD #1

revisions/reviews  
in charge Z. GUBERNICH  
designed Z. GUBERNICH  
drawn Z. GUBERNICH  
checked Z. GUBERNICH  
approved [Signature]  
date 8-9-81

unit  
SITE DEVELOPMENT  
STORM & SANITARY  
SEWER RELOCATION

sheet title

PARTIAL SITE PLAN

job number sheet number

**850-TA CO-1**

**79021-S2,R6**



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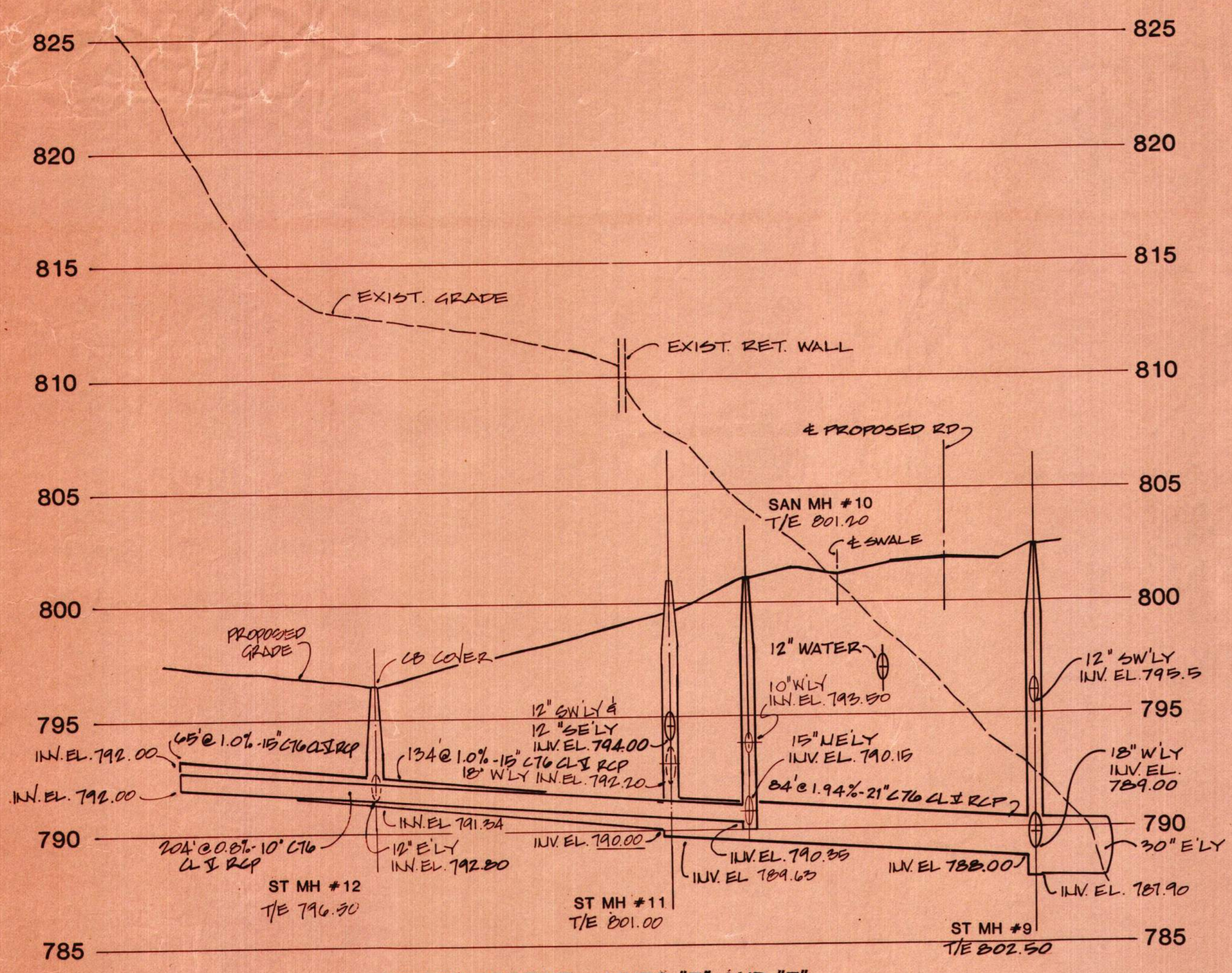
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 ANN ARBOR, MICHIGAN

OFFICE OF PLANNING, RESEARCH & DEVELOPMENT

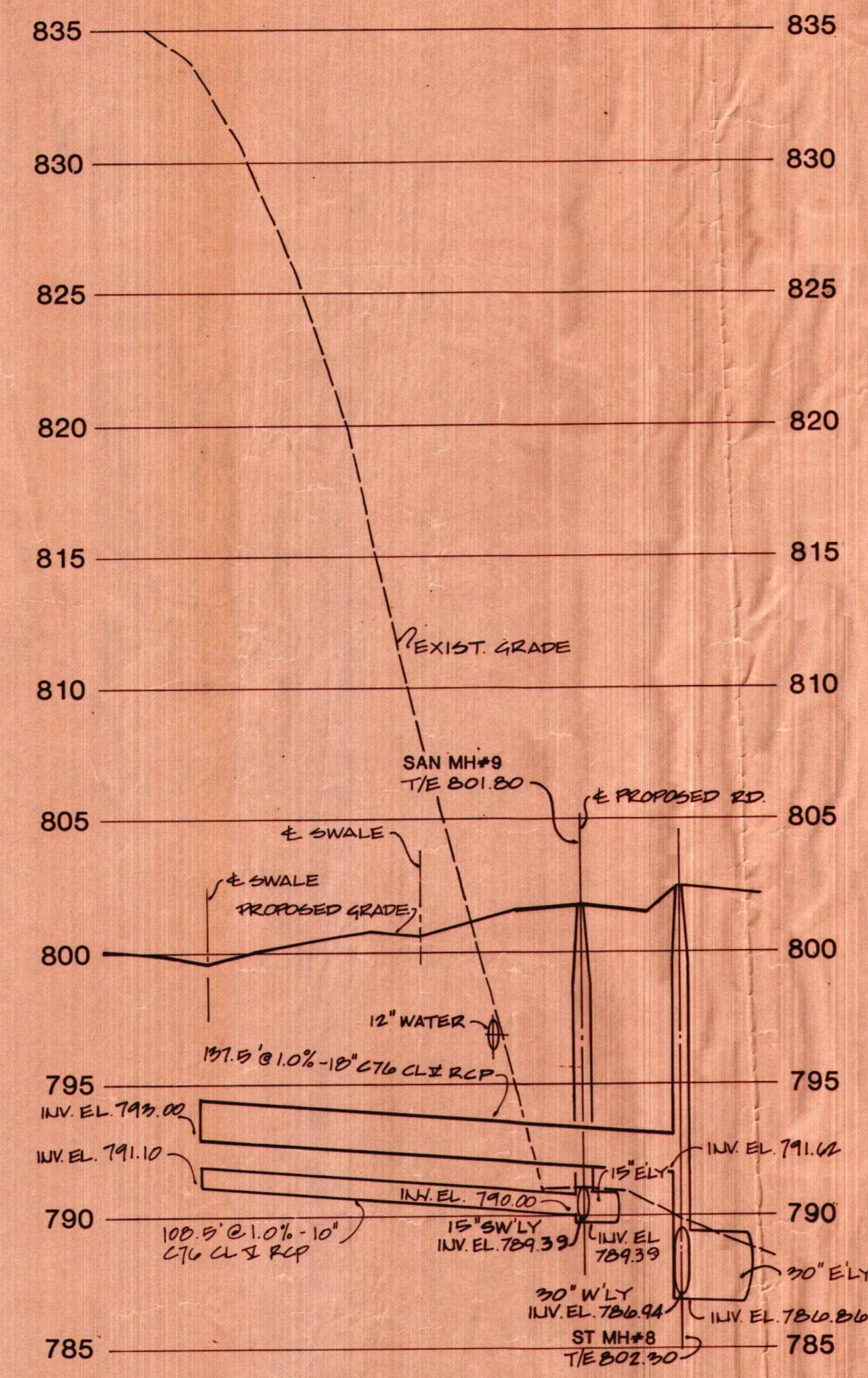
U of M project number

**380**

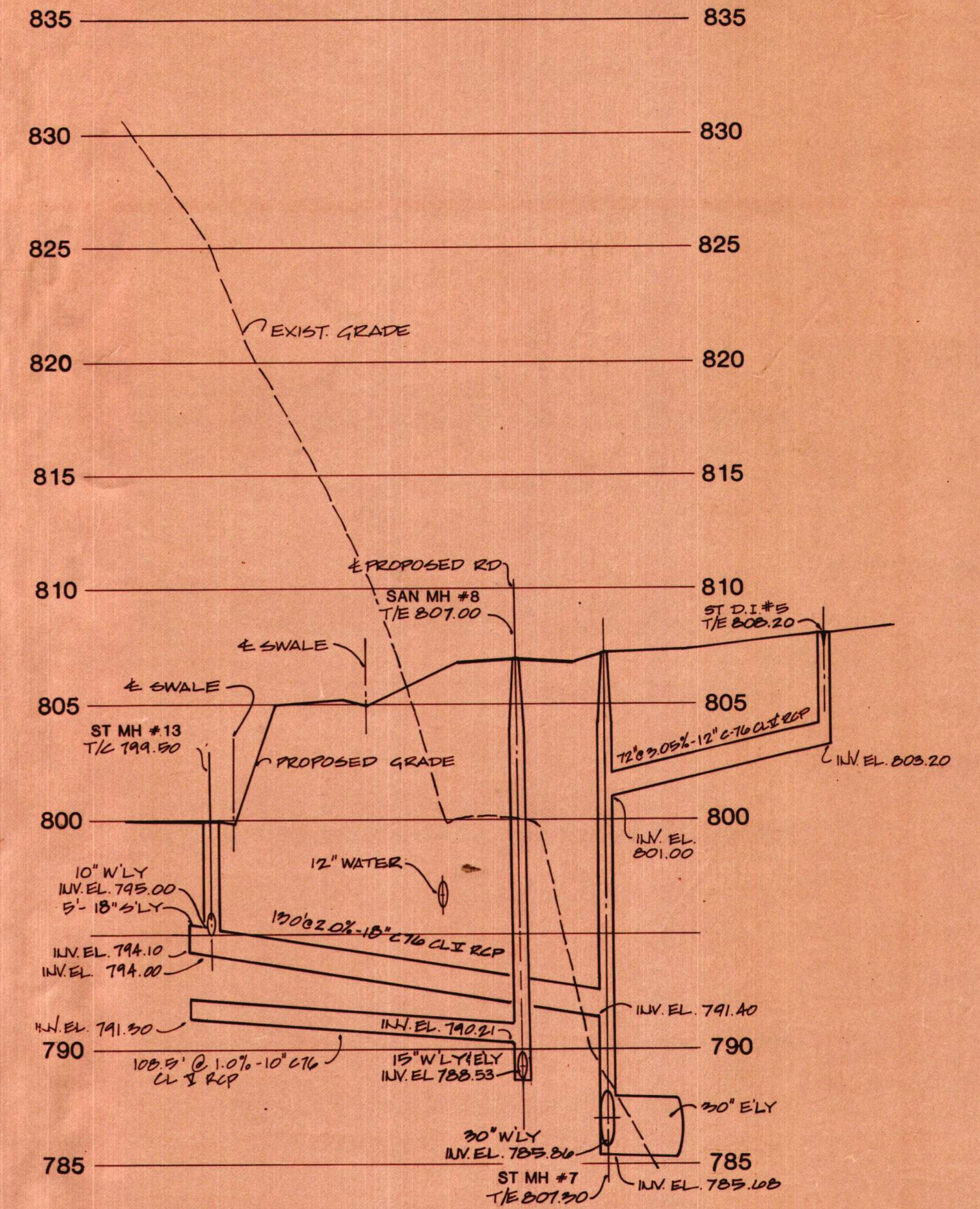
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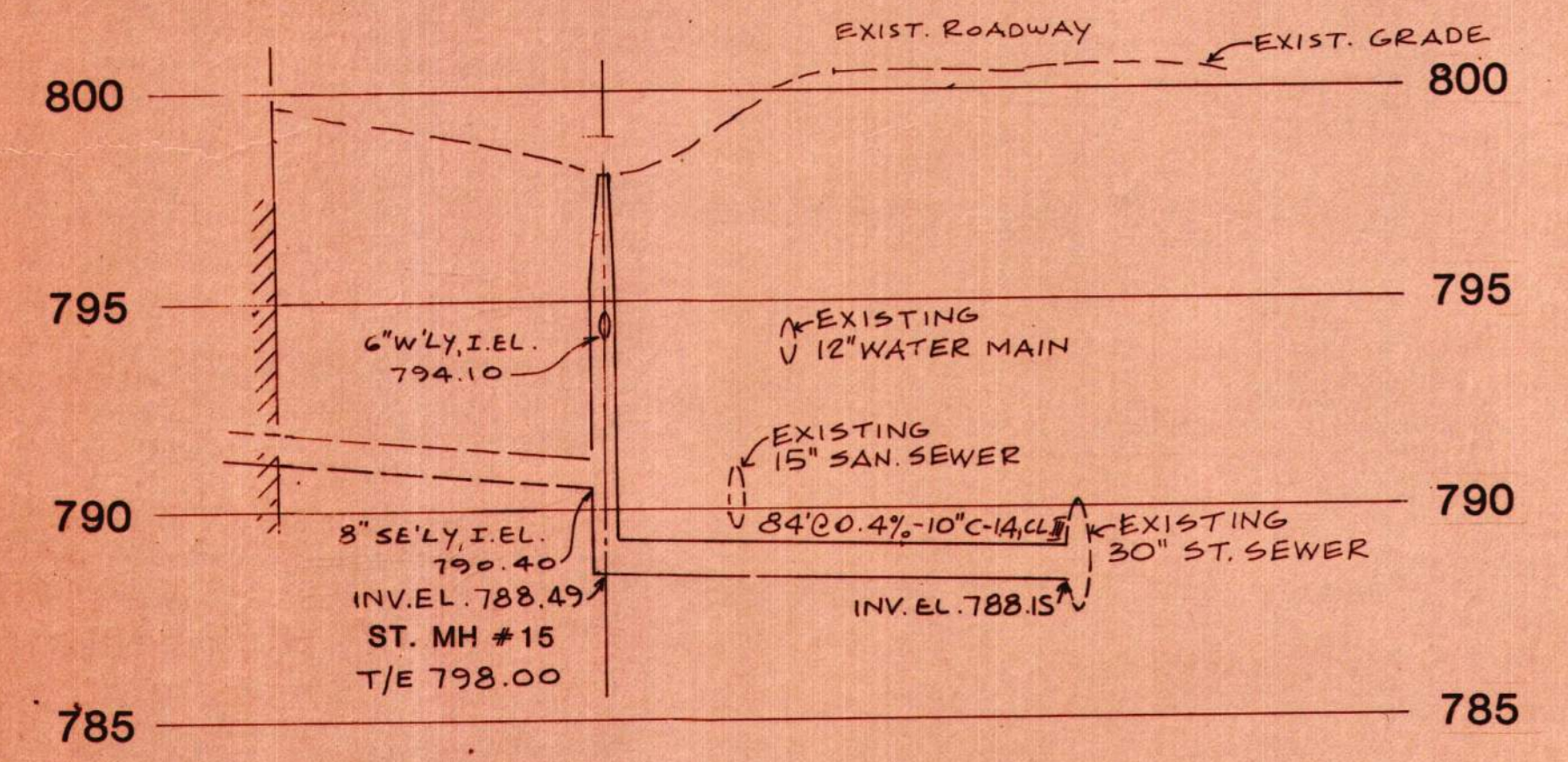
UTILITY PROFILE - LINES "E" AND "F"  
 SCALE: HORIZ. 1" = 30'-0"  
 VERT. 1" = 4'-0"



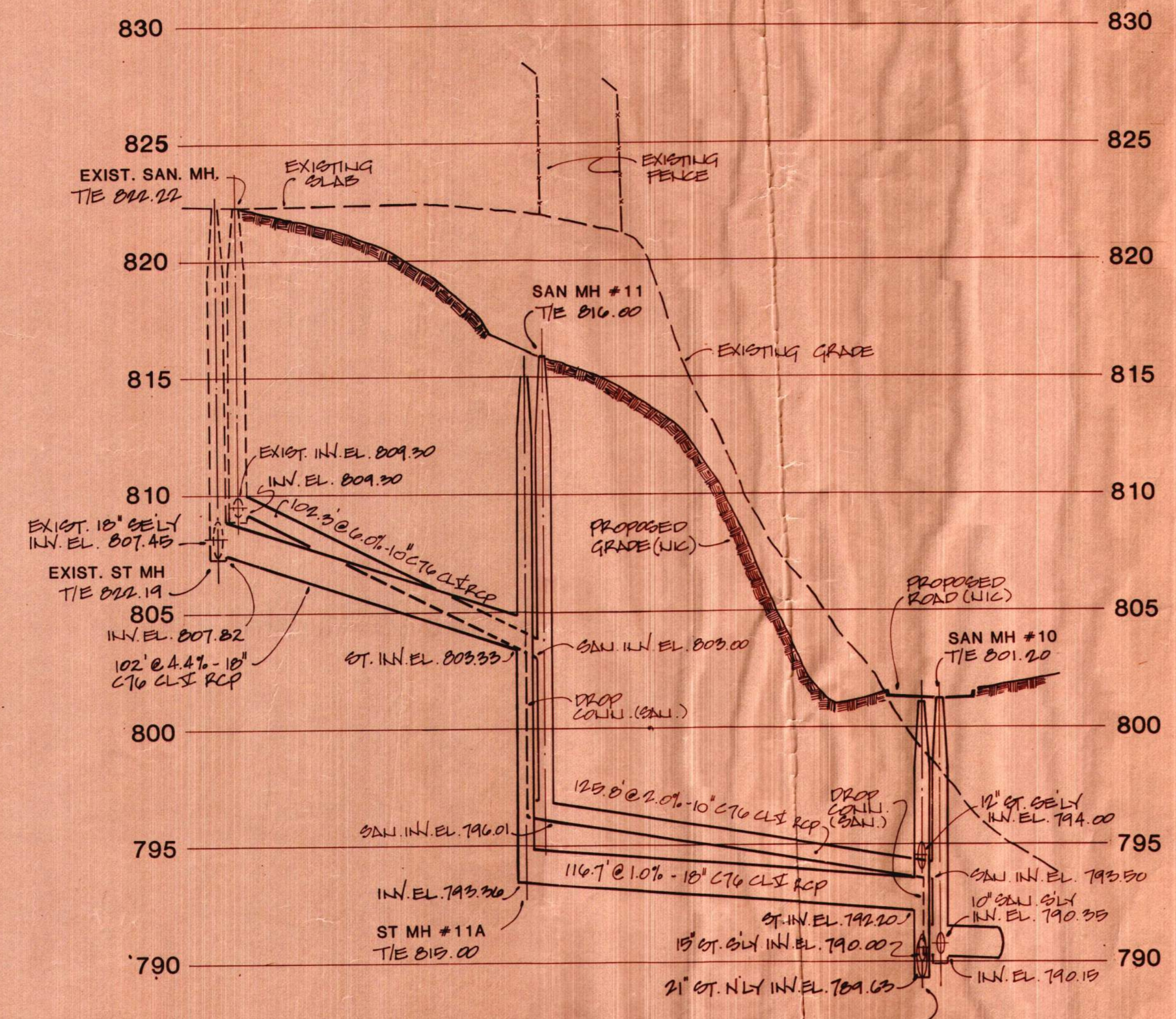
UTILITY PROFILE - LINES "G" AND "H"  
 SCALE: HORIZ. 1" = 30'-0"  
 VERT. 1" = 4'-0"



UTILITY PROFILE - LINES "J" AND "K"  
 SCALE: HORIZ. 1" = 30'-0"  
 VERT. 1" = 4'-0"



STORM SEWER PROFILE - LINE "O"  
 SCALE: HORIZ. 1" = 30'-0"  
 VERT. 1" = 4'-0"



UTILITY PROFILE - LINE "M" AND "N"  
 SCALE: HORIZ. 1" = 30'-0"  
 VERT. 1" = 4'-0"

| 12-23-82 "AS-BUILT"      |          |
|--------------------------|----------|
| BULLETIN NO. 6-8 (REV'D) | 5-27-82  |
| BULLETIN NO. 6-8         | 5-5-82   |
| BULLETIN NO. 4-5         | 2-3-82   |
| BULLETIN NO. 4-2 (REV'D) | 11-16-81 |
| BULLETIN NO. 4-2         | 10-16-81 |
| APPENDUM NO. 1           | 8-20-81  |
| revisions/reviews        |          |

in charge Z. GUBERINICH  
 designed Z. GUBERINICH  
 drawn J. SCHWARK  
 checked Z. GUBERINICH  
 approved H. S. M...  
 date 8-20-81

## REPLACEMENT HOSPITAL

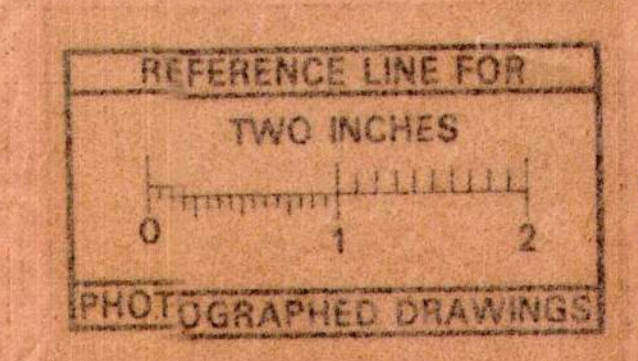
sheet title

## UTILITIES PROFILE

79021-26

job number sheet number

850-TD C20-3



# REPLACEMENT HOSPITAL PROJECT

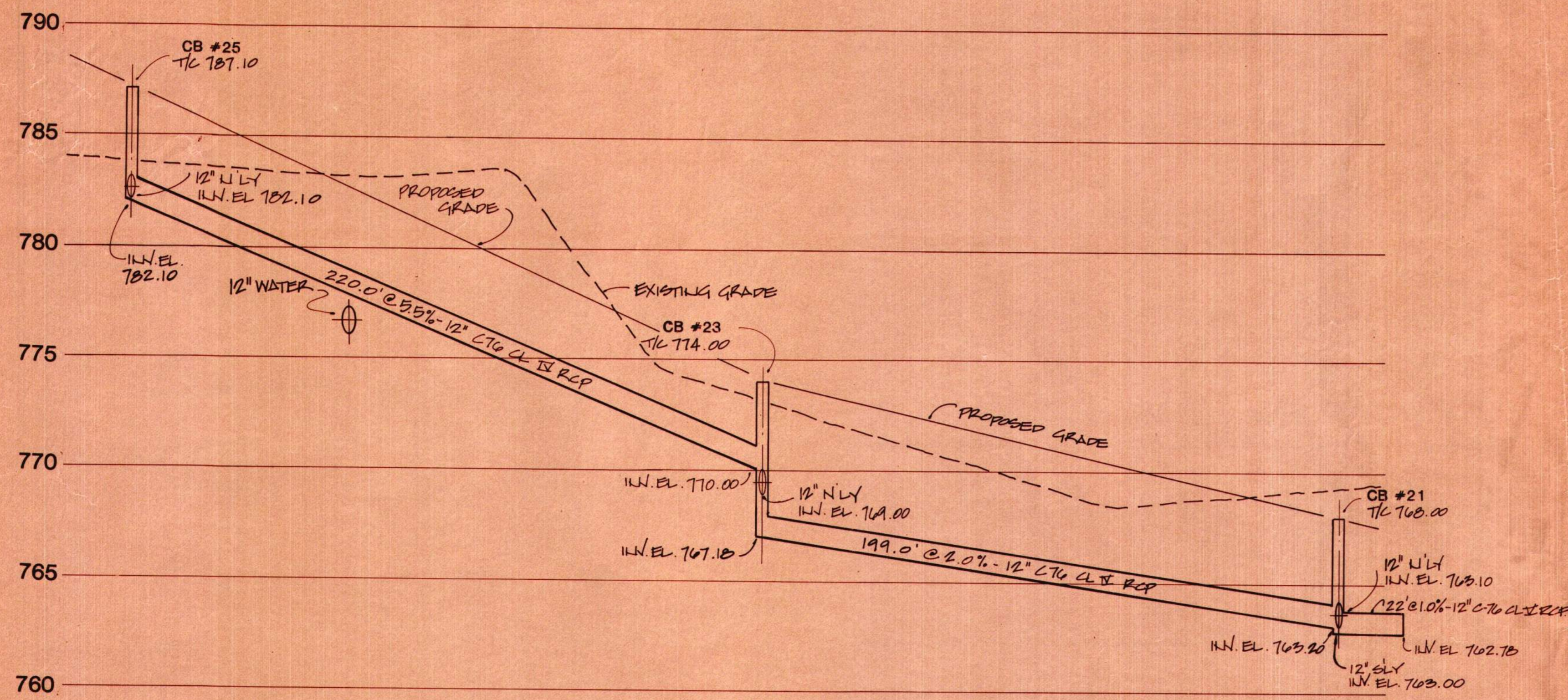
THE UNIVERSITY OF MICHIGAN  
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U of M project number

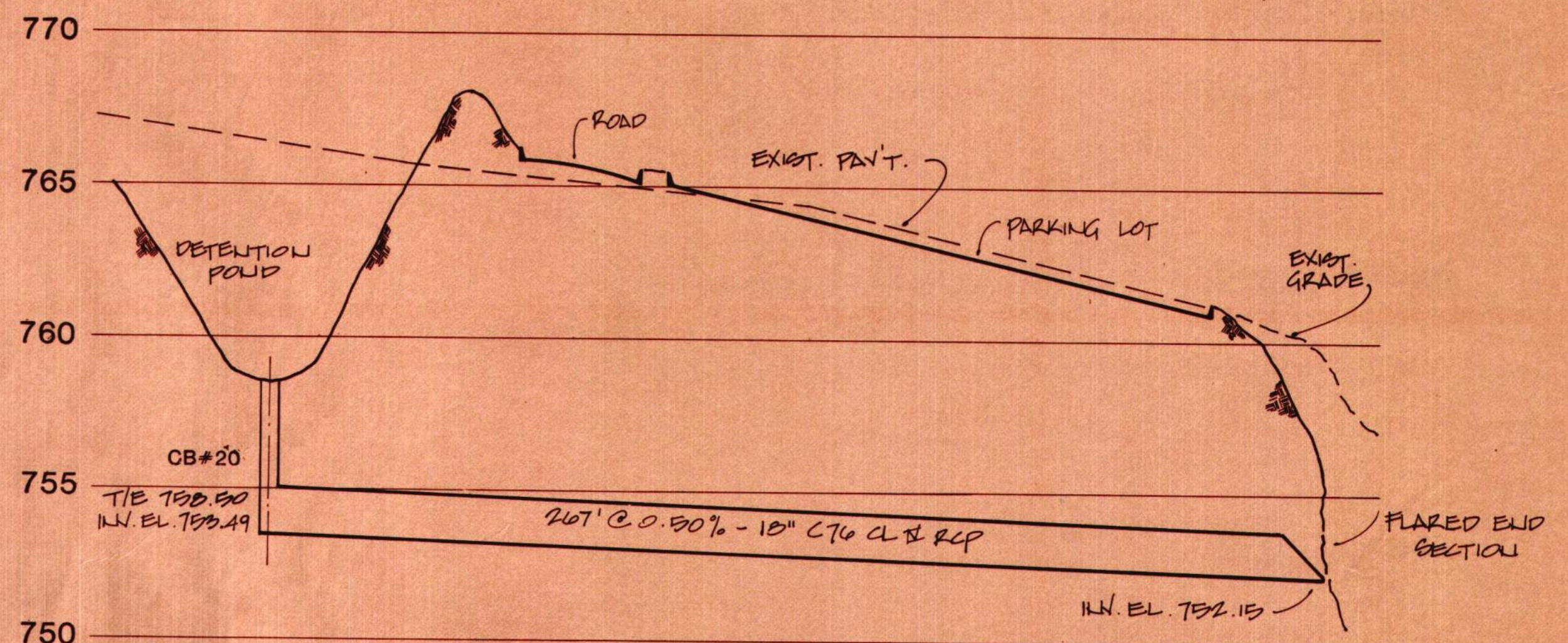
380

issued for



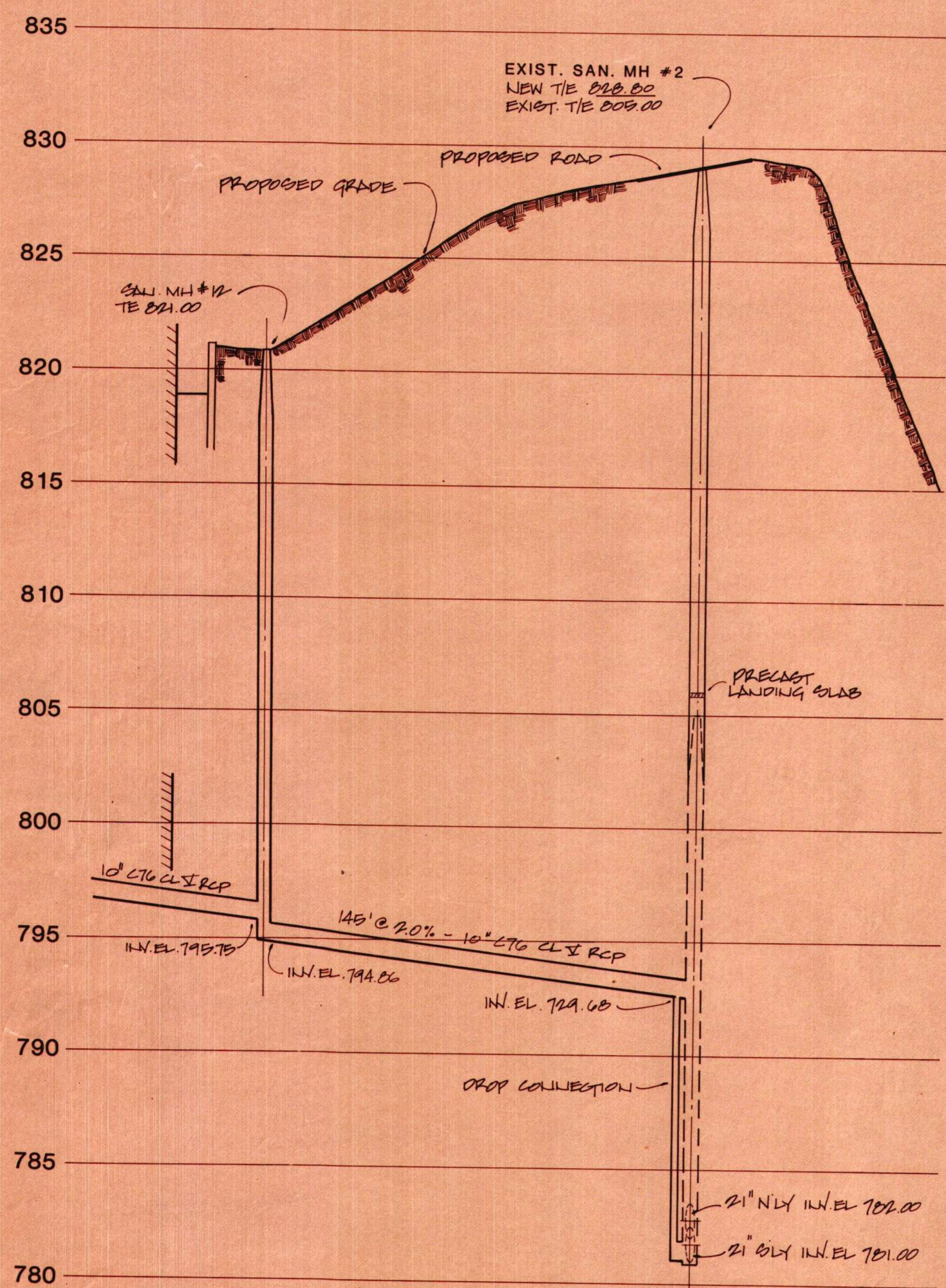
**STORM SEWER PROFILE-LINE "C"**

SCALE HORIZ. 1"=30'-0"  
VERT. 1"=4'-0"



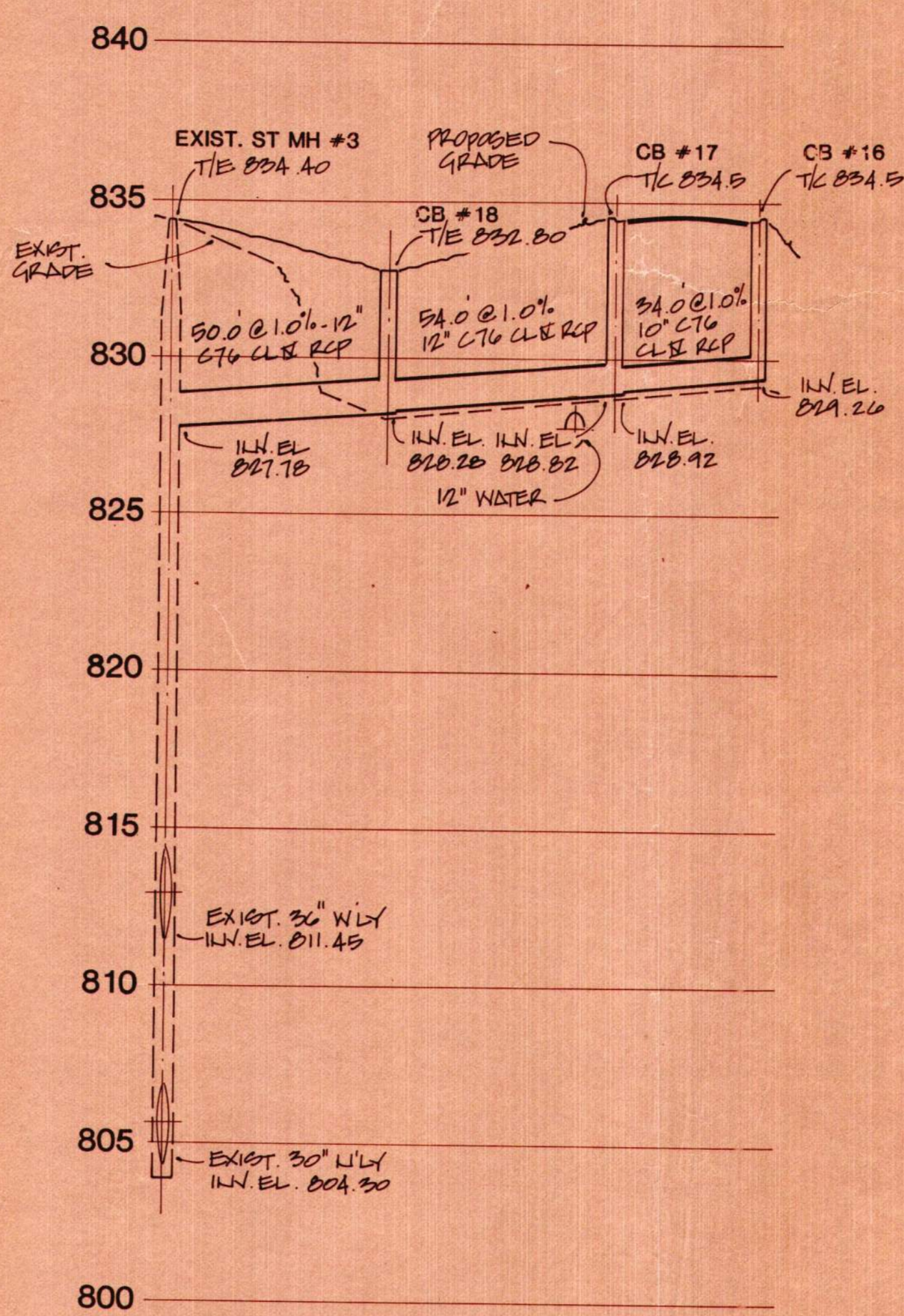
**STORM SEWER PROFILE-LINE "B"**

SCALE HORIZ. 1"=30'-0"  
VERT. 1"=4'-0"



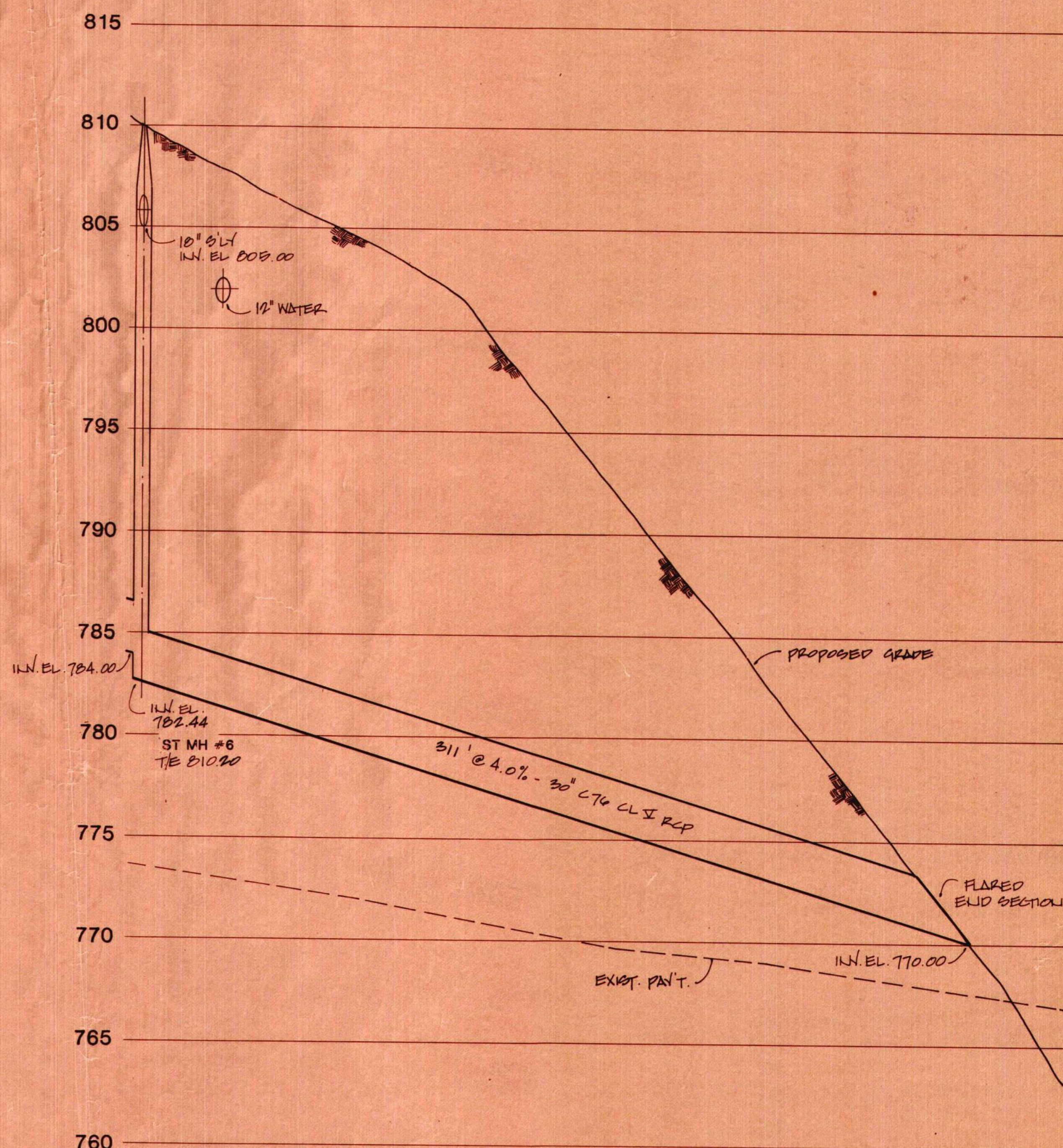
**UTILITY PROFILE LINE "L"**

SCALE HORIZ. 1"=30'-0"  
VERT. 1"=4'-0"



**STORM SEWER PROFILE-LINE "D"**

SCALE HORIZ. 1"=30'-0"  
VERT. 1"=4'-0"



**STORM SEWER PROFILE-LINE "A"**

SCALE HORIZ. 1"=30'-0"  
VERT. 1"=4'-0"

12-23-82 "AS-BUILT"

|                   |       |
|-------------------|-------|
| BULLETIN NO. 6-11 | 7-19  |
| BULLETIN NO. 4-2  | 10-16 |
| ADDENDUM NO. 1    | 8-20  |

revisions/reviews

|           |              |
|-----------|--------------|
| in charge | J. GUBERLICH |
| designed  | J. GUBERLICH |
| drawn     | D. LIFERMAN  |
| checked   | J. GUBERLICH |
| approved  | J. GUBERLICH |
| date      | 8-2-81       |

unit

## REPLACEMENT HOSPITAL

sheet title

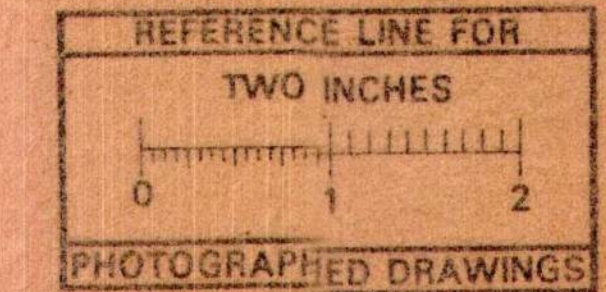
### UTILITIES PROFILE

79021-26

job number sheet number

850-TD C20-2

79021-S5,R9



Photographed Drawings

# REPLACEMENT HOSPITAL PROJECT

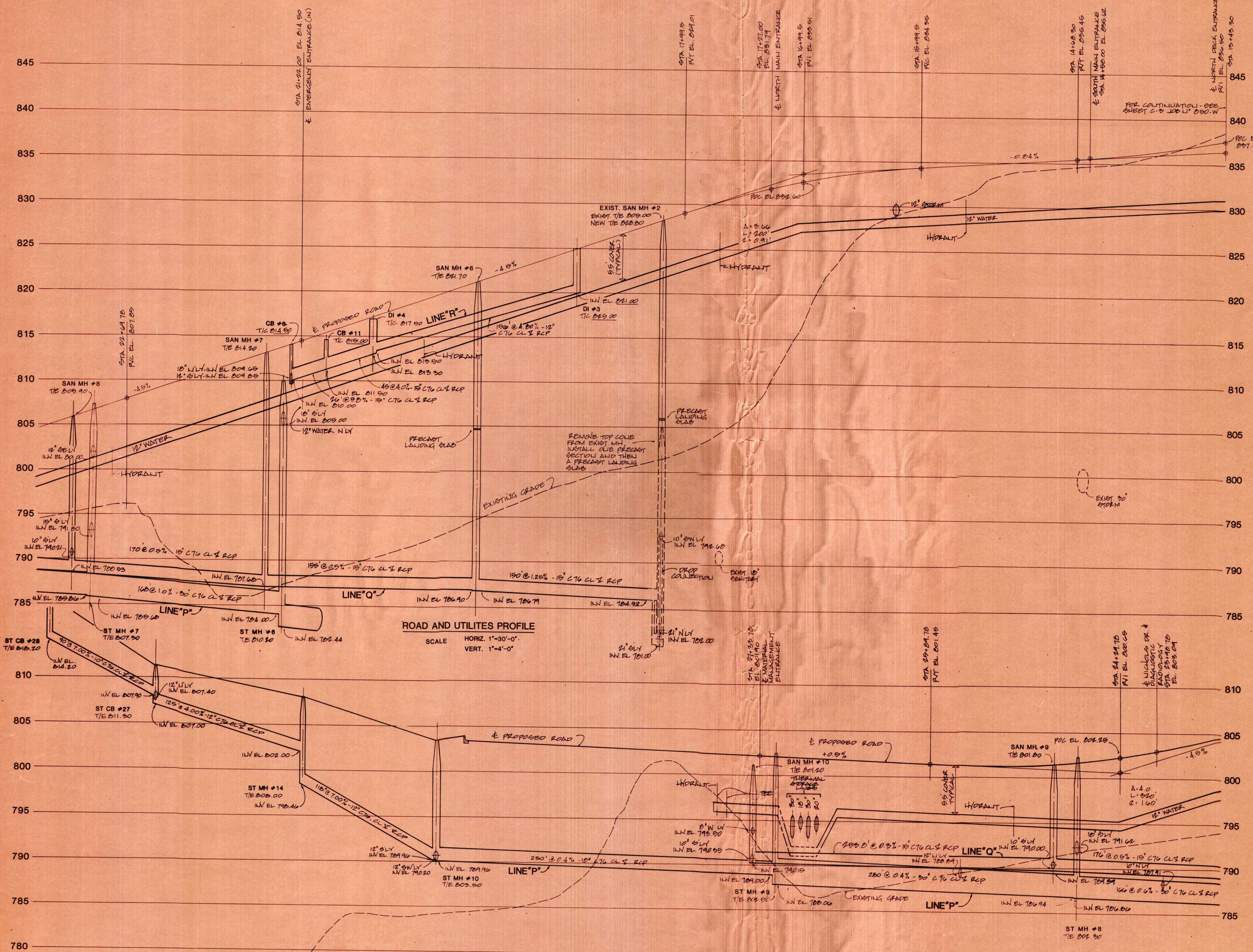
THE UNIVERSITY OF MICHIGAN  
UNIVERSITY HOSPITAL  
ANN ARBOR, MICHIGAN

OFFICE OF PLANNING, RESEARCH & DEVELOPMENT

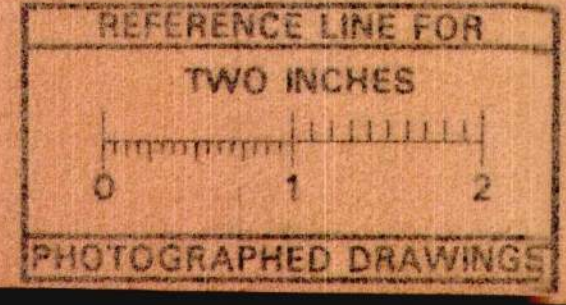
U of M project number

380

issued for



ROAD AND UTILITIES PROFILE  
SCALE HORIZ. 1"=30'-0"  
VERT. 1"=4'-0"



12-23-82 'AS-BUILT'  
BULLETIN NO. 4-2 (REV'D) 11-18-81  
BULLETIN NO. 4-2 10-18-81  
ADDENDUM NO. 1 8-20-81

revisions/reviews  
in charge I. GUBERNICH  
designed I. GUBERNICH  
drawn D. URBAN  
checked I. GUBERNICH  
approved R. GIBSON  
date 8-2-81

## REPLACEMENT HOSPITAL

## ROAD AND UTILITIES PROFILE

job number sheet number  
850-TD C20-1

# REPLACEMENT HOSPITAL PROJECT

THE UNIVERSITY OF MICHIGAN  
 UNIVERSITY HOSPITAL  
 ANN ARBOR, MICHIGAN

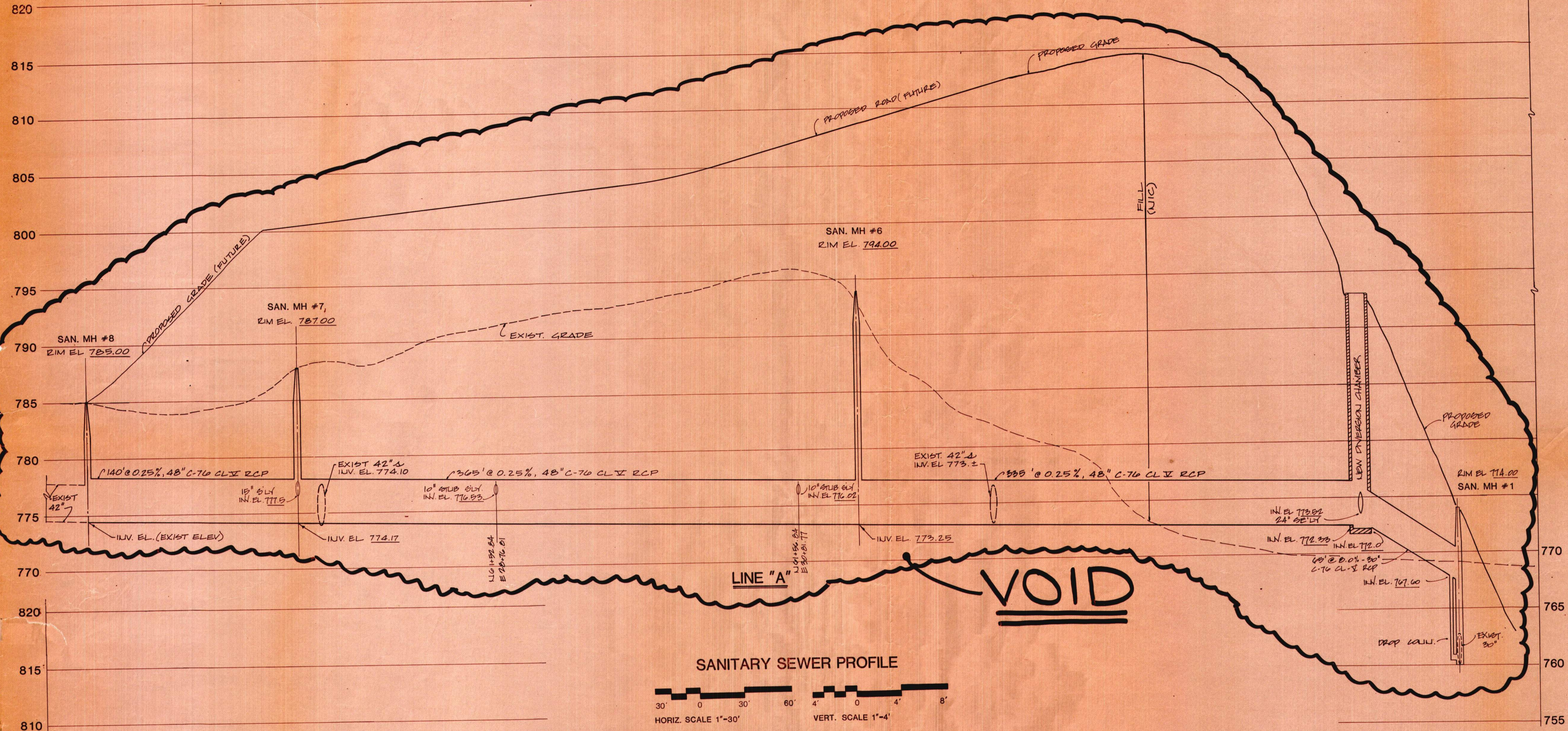
OFFICE OF PLANNING, RESEARCH & DEVELOPMENT

U of M project number

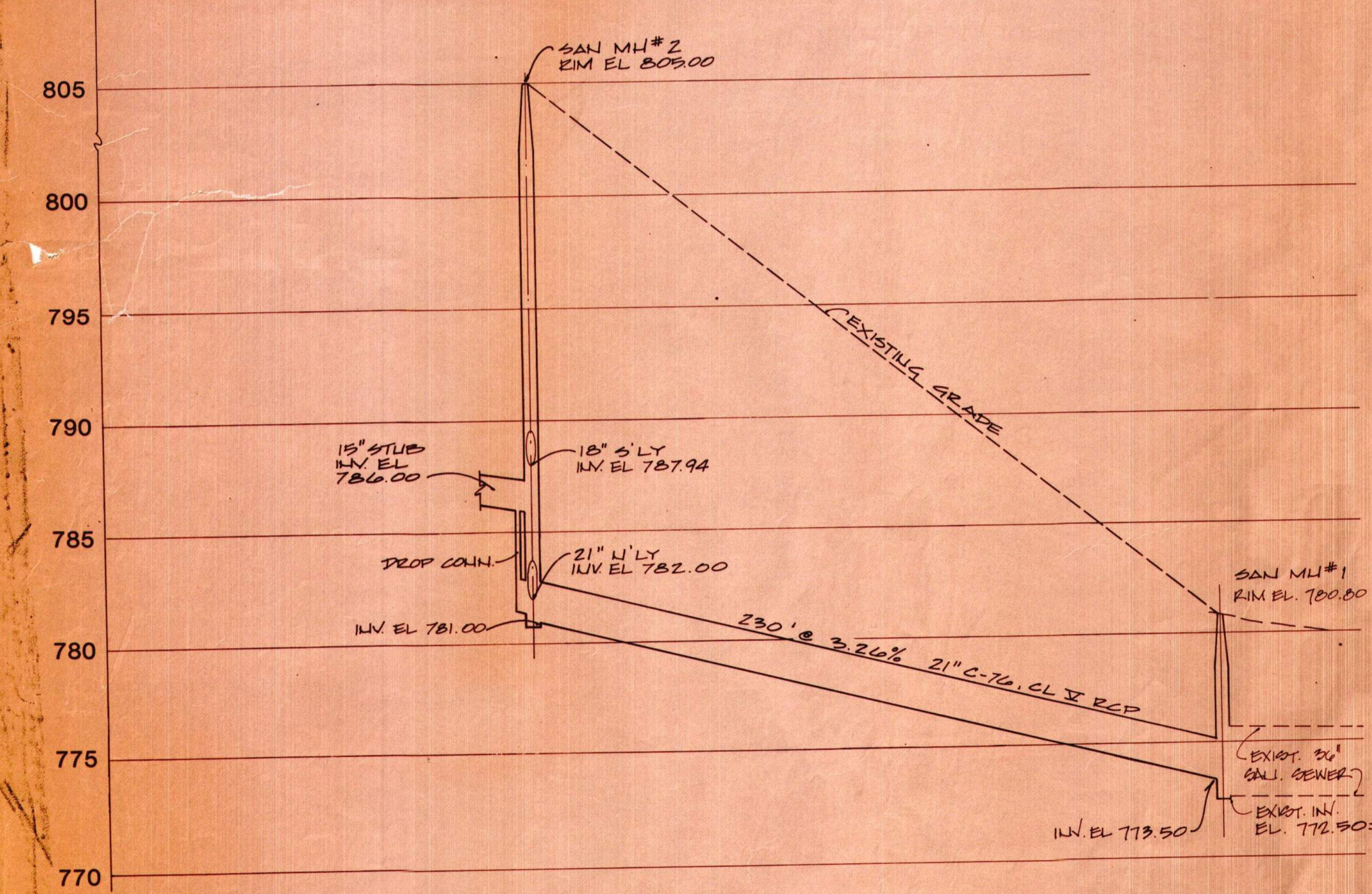
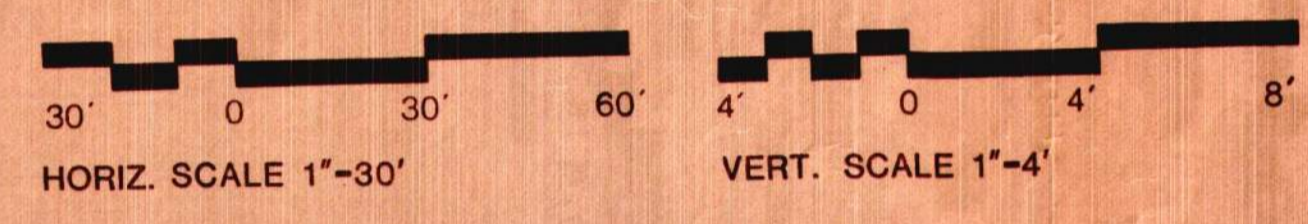
**378B**

issued for

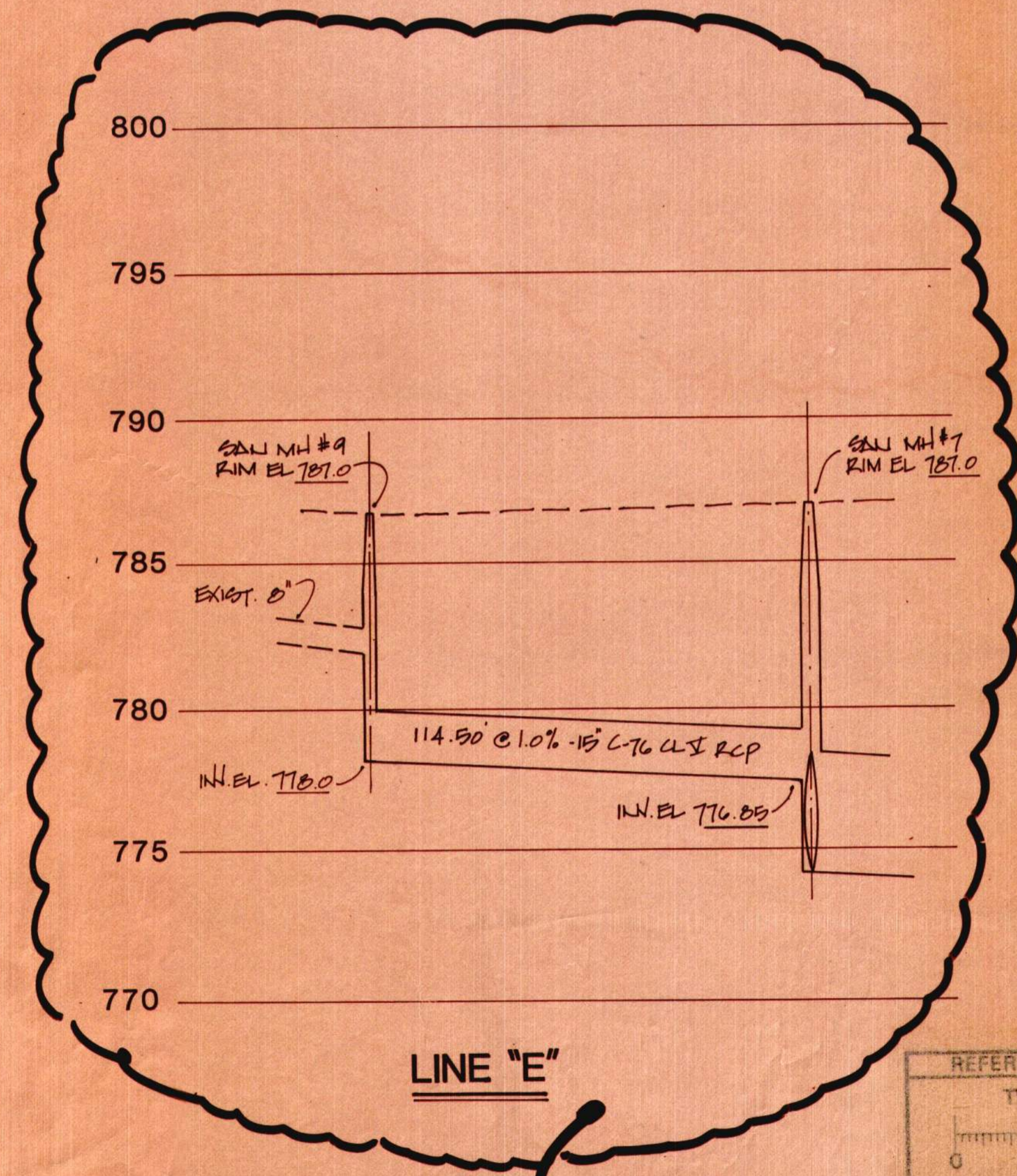
79021-35



**SANITARY SEWER PROFILE**



**LINE "B"**

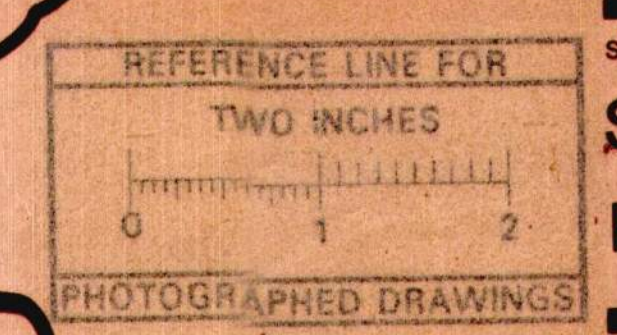


**LINE "E"**

**VOID**

12-23-82 "AS-BUILT"  
 7-7-81 BULL'N' 2A-1  
 5-29-81 ADD #2  
 5-18-81 ADD #1  
 revisions/reviews  
 in charge Z. GUBERINICH  
 designed Z. GUBERINICH  
 drawn J. SCHWARZ  
 checked Z. GUBERINICH  
 approved Z. GUBERINICH  
 date 5.4.81  
 U of M approved

unit  
**SITE DEVELOPMENT**  
**STORM & SANITARY SEWER RELOCATION**



sheet title  
**SANITARY SEWER PROFILE**

job number sheet number

# REPLACEMENT HOSPITAL PROJECT

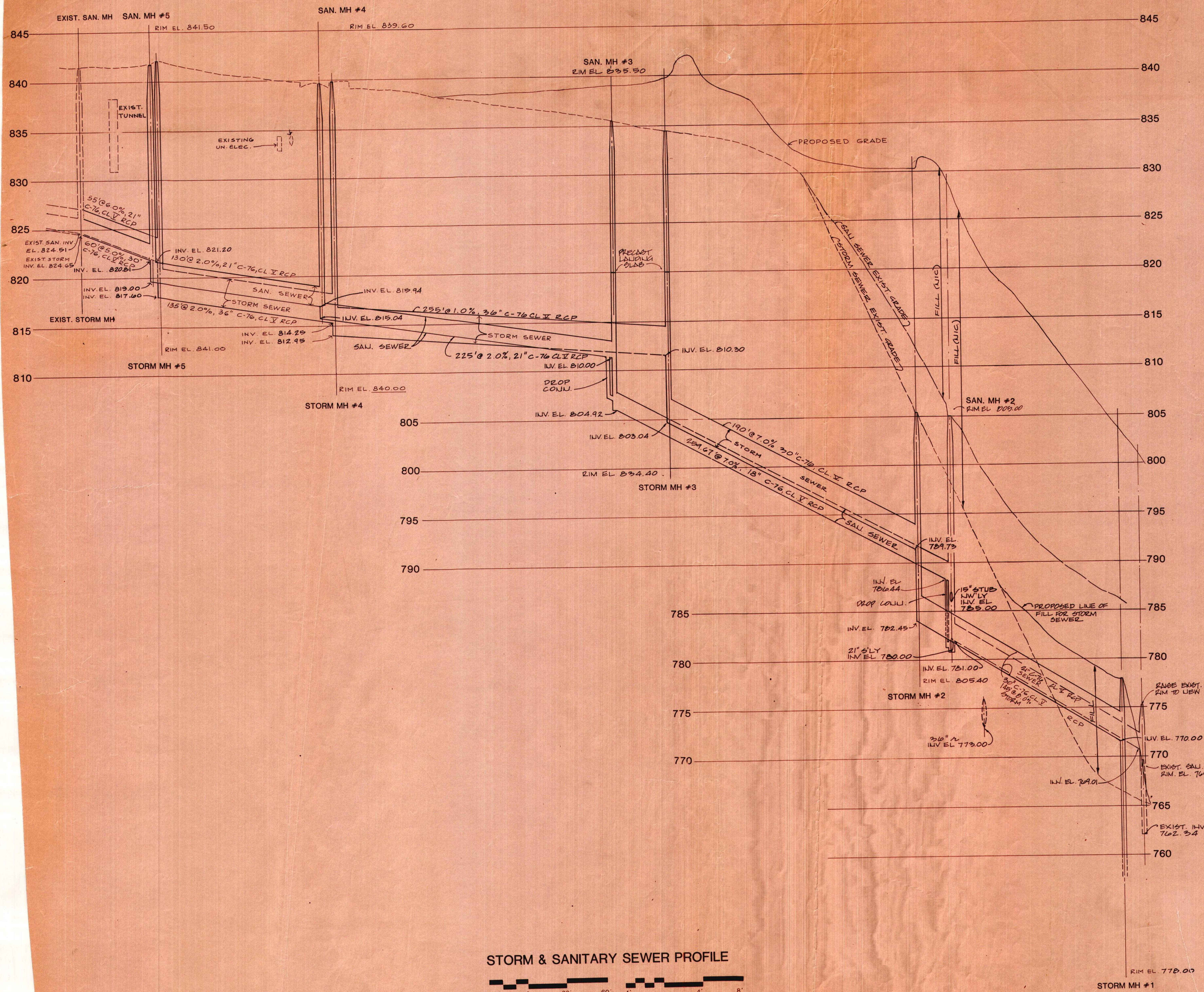
THE UNIVERSITY OF MICHIGAN  
UNIVERSITY HOSPITAL  
ANN ARBOR, MICHIGAN

OFFICE OF PLANNING, RESEARCH & DEVELOPMENT

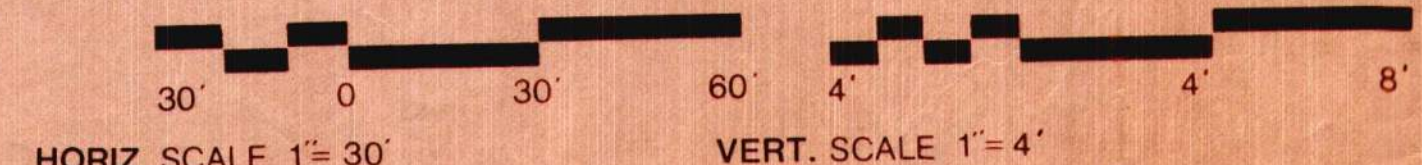
U of M project number  
**378B**

issued for

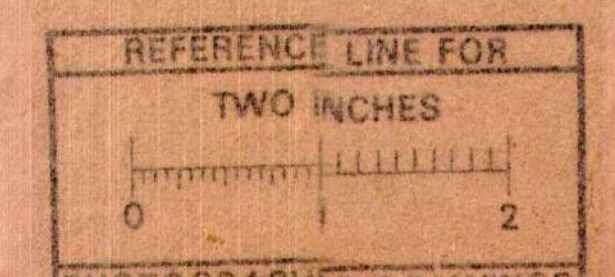
79021-36



**STORM & SANITARY SEWER PROFILE**



**LINE "C" & "D"**



PHOTOGRAPHED DRAWINGS

12-23-82 "AS-BUILT"  
7-7-81 BULL. N° 2A-1  
5-29-81 ADD #2  
5-18-81 ADD #1  
revisions/reviews

in charge **Z. GUBERINICH**  
designed **Z. GUBERINICH**  
drawn **J. SCHWARK**  
checked **Z. GUBERINICH**  
approved **Z. GUBERINICH**  
date **5-4-81**

U of M approved

unit  
**SITE DEVELOPMENT**  
**STORM & SANITARY SEWER RELOCATION**

sheet title  
**STORM & SANITARY SEWER PROFILE**

job number sheet number

**79021-S9,R13 850-TA C5-2**

# REPLACEMENT HOSPITAL PROJECT

THE UNIVERSITY OF MICHIGAN  
UNIVERSITY HOSPITAL  
ANN ARBOR, MICHIGAN

OFFICE OF PLANNING RESEARCH & DEVELOPMENT

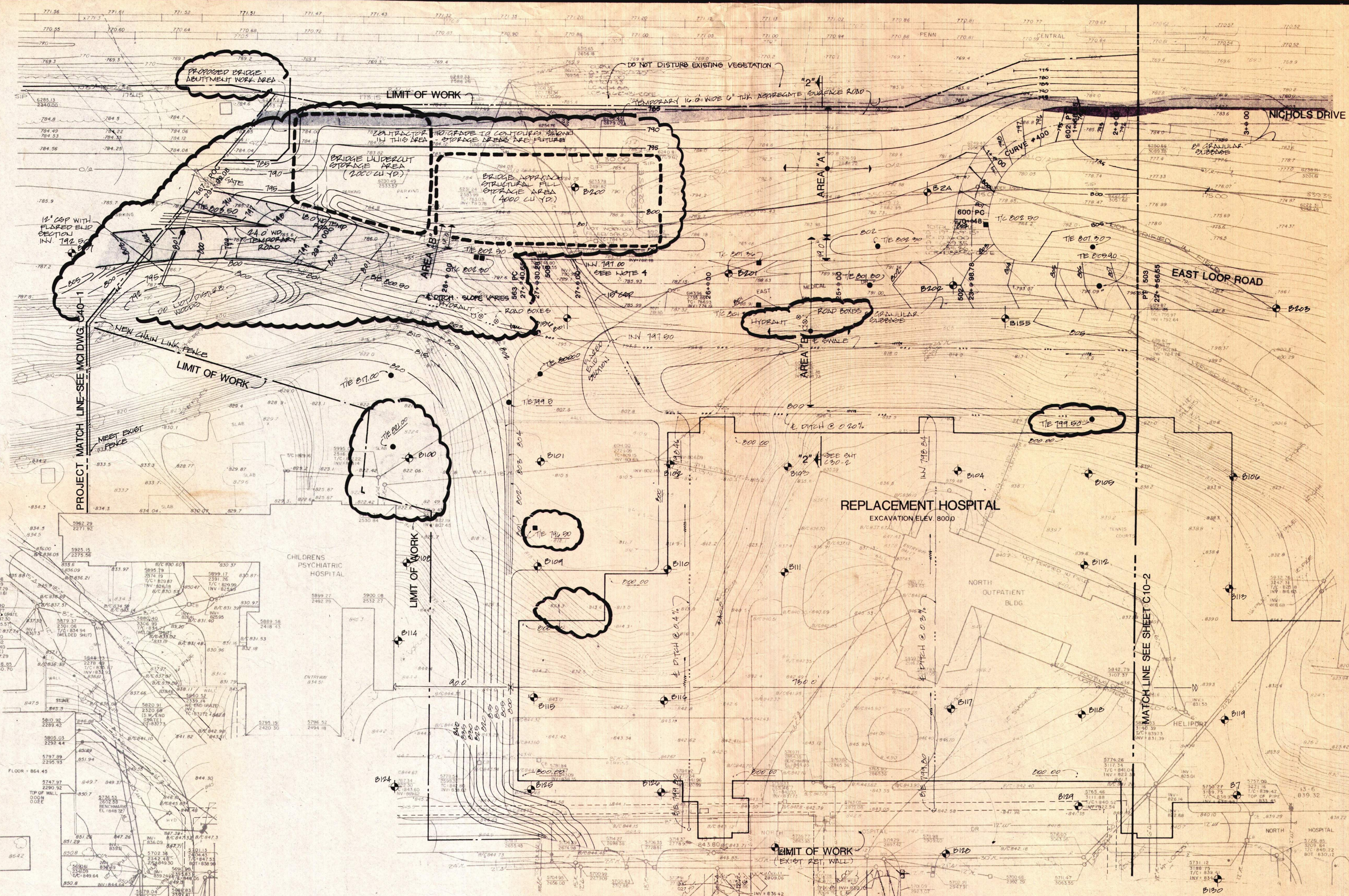
U of M project number

380

Johnson, Johnson & Roy Inc. Planning Landscape Architecture  
300 N. Main Street Ann Arbor, Michigan 48104 313 562 4457

**JJR** Project No. 12598D

issued for



### NOTES & LEGEND

- 800 --- PROPOSED CONTOUR
- 785.00 --- PROPOSED SPOT ELEVATION
- --- MATCH LINE
- --- WORK LIMIT

1. SEE SHEET C10-1 FOR ROAD PROFILES.
2. INSTALL 4" TOPSOIL IN ALL AREAS TO BE PLANTED - SEE LANDSCAPE PLAN.
3. ALL EXISTING SURFACE OBSTACLES TO BE REMOVED WITHIN LIMITS OF NEW CONSTRUCTION.
4. STRUCTURE TO BE RAISED TO ACCEPT DISCHARGE OF 15" COP.

### EARTHWORK NOTES:

- AREA "A" REMOVE VEGETATION, RETAIN TOPSOIL. PLACE FILL COMPACTED TO 90 PERCENT.
- AREA "B" REMOVE VEGETATION AND TOPSOIL. PLACE FILL COMPACTED TO 95 PERCENT.

### GENERAL NOTES:

- A. GRADES ON EAST LOOP ROAD, BETWEEN EAST LOOP ROAD AND NICHOLS DRIVE, NORTH OF NICHOLS DRIVE AND PARKING LOT ARE FINISH GRADES.
- B. SEE SUMMARY OF THE WORK SECTION 1B, PROPOSAL B - EARTHWORK. TOP OF GRANULAR SUB-BASE SHALL BE 10-1/2" BELOW FINISH GRADES ON EAST LOOP ROAD AND NICHOLS DRIVE AND 8-1/2" BELOW FINISH GRADES ON THE PARKING LOT.
- C. GRADES BETWEEN EAST LOOP ROAD AND HOSPITAL ARE FINISH GRADES AS SHOWN.

### EAST LOOP ROAD CENTER LINE COORDINATES

| PT. NO. | NORTH   | EAST    |
|---------|---------|---------|
| 500     | 6148.11 | 2634.85 |
| 502     | 6154.58 | 2966.29 |
| 503     | 6157.36 | 3108.49 |
| 504     | 6147.91 | 2624.49 |
| 505     | 6125.17 | 2385.98 |
| 506     | 6574.83 | 2616.15 |

### CURVE NO. 608

|                   |
|-------------------|
| A = 33° 44' 13.5" |
| R = 427.00'       |
| T = 129.48'       |
| ARC = 251.43'     |
| CHORD = 247.81'   |

### SOIL BORING COORDINATES

| NO. | NORTH | EAST |
|-----|-------|------|
| 2A  | 6224  | 2931 |
| 3A  | 6086  | 3252 |
| 4A  | 5976  | 3368 |
| 4A  | 6183  | 3365 |
| 5A  | 6018  | 3530 |
| 7   | 5765  | 3182 |
| 8   | 5713  | 3268 |
| 11  | 5673  | 3528 |
| 11  | 5818  | 3441 |
| 123 | 5702  | 3168 |
| 131 | 5744  | 3341 |
| 132 | 5708  | 3443 |
| 133 | 5708  | 3563 |
| 154 | 6053  | 3423 |
| 155 | 6129  | 2993 |
| 156 | 6122  | 2658 |

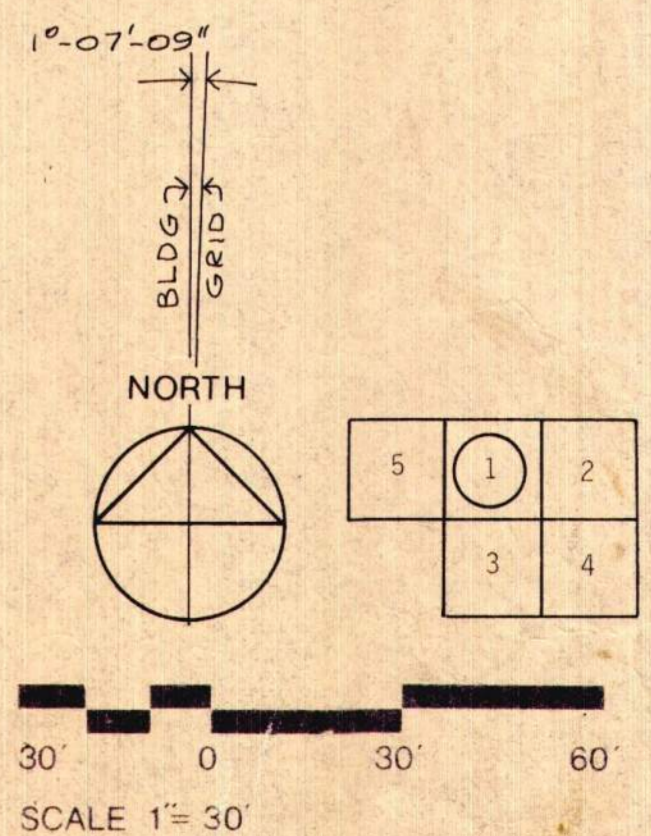
### GENERAL INFO. ONLY NO AS-BUILT INFO. AVAILABLE

### LEGEND OF EXIST. SERVICES

|                |                |            |               |
|----------------|----------------|------------|---------------|
| --- 800 ---    | CONTOUR        | 1940.25    | SPOT EL.      |
| --- 800.43 --- | CO-ORDINATES   | MICH. BELL | TELE.         |
| --- 800.81 --- | STORM SEWER    | ---        | ---           |
| ---            | SANITARY SEWER | ---        | LIGHT POLE    |
| ---            | WATER LINE     | ---        | SIGN          |
| ---            | GAS LINE       | ---        | SET IRON PIPE |
| ---            | ELECTRIC LINE  | ---        | ---           |

### NOTES:

1. CONTOURS COMPILED BY ABRAMS AERIAL SURVEY CORPORATION FROM AERIAL PHOTOGRAPHS; GRID ELEVATIONS BY WASHNETEN ENGINEERING COMPANY, INC. ARE ACTUAL GROUND SHOTS.
2. ADD 280,000 TO ALL NORTH COORDINATES AND 480,000 TO ALL EAST COORDINATES TO CONFORM TO THE EXISTING GRID SYSTEM.



BULLETIN NO. 4-2 10-16-81  
ADDENDUM NO. 1 8-20-81

revisions/reviews

in charge Z. GUBERNICH  
designed Z. GUBERNICH  
drawn Z. GUBERNICH  
checked Z. GUBERNICH  
approved of C. H. ...  
date 8.2.81

## REPLACEMENT HOSPITAL

### PARTIAL SITE GRADING PLAN (AREA 1) (PRIVATE)

job number 850-TD sheet number C10-1



# REPLACEMENT HOSPITAL PROJECT

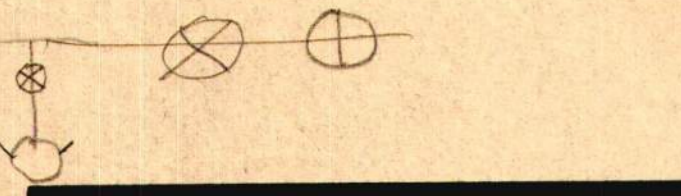
THE UNIVERSITY OF MICHIGAN  
UNIVERSITY HOSPITAL  
ANN ARBOR, MICHIGAN

OFFICE OF PLANNING, RESEARCH & DEVELOPMENT

U of M project number

380

issued for



BULLETIN NO. 4-2 10-16-81

ADDENDUM NO. 1 8-20-81

revisions/reviews

in charge Z. GUBERINICH  
designed Z. GUBERINICH  
drawn Z. GUBERINICH  
checked Z. GUBERINICH  
approved *[Signature]*  
date 8-3-81

unit

## REPLACEMENT HOSPITAL UTILITIES PLAN

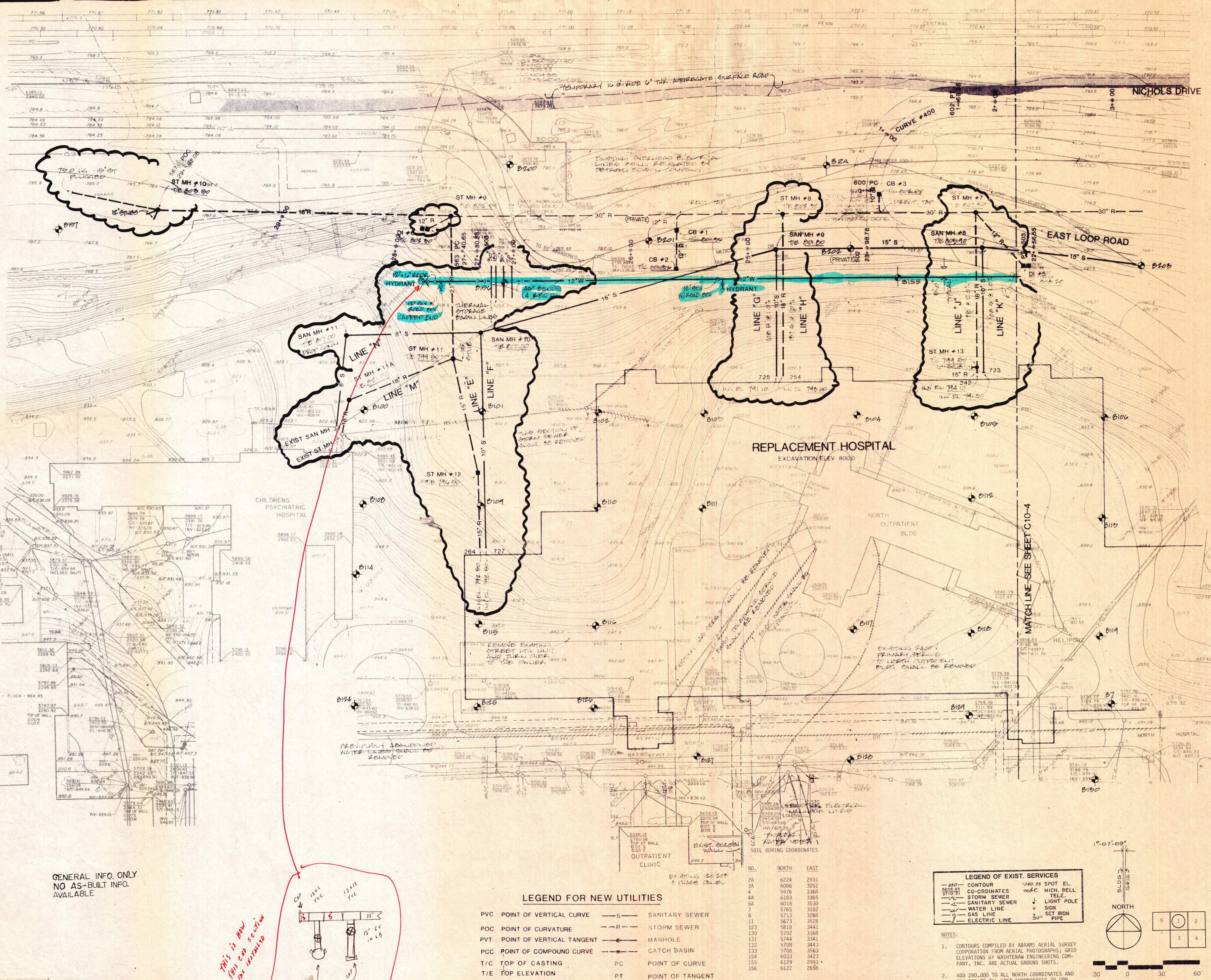
sheet title

### PARTIAL SITE UTILITIES PLAN (AREA 1) (PRIVATE)

job number sheet number

850-TD C10-3

6C5605-W1,S1,R1



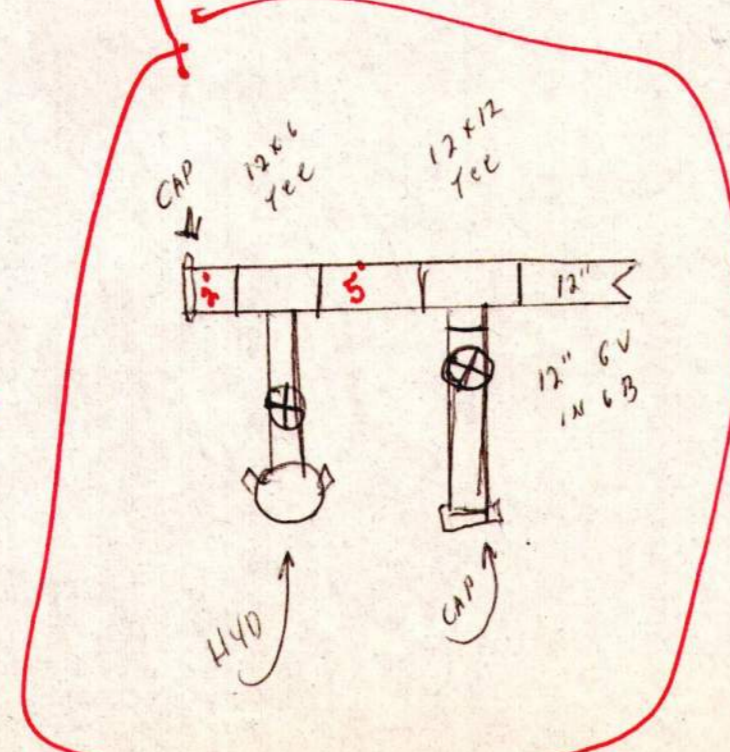
job no. 850-TD  
base C100  
7-24-81

FLOOR = 854.45  
TOP OF WALL  
0.00 E  
TOP OF WALL  
0.00 E

GENERAL INFO. ONLY  
NO AS-BUILT INFO.  
AVAILABLE.

Digital Status  
Scanned On 7-6-05  
By: YSK

*THIS IS NEW  
THIS CAP SECTION  
WAS INSTALLED*



#### LEGEND FOR NEW UTILITIES

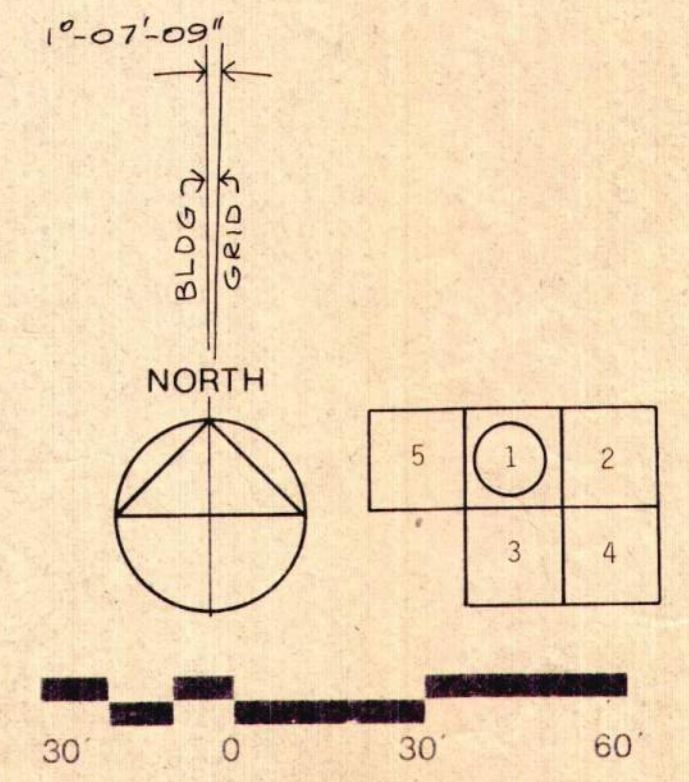
|     |                           |     |                  |
|-----|---------------------------|-----|------------------|
| PVC | POINT OF VERTICAL CURVE   | -S- | SANITARY SEWER   |
| POC | POINT OF CURVATURE        | -R- | STORM SEWER      |
| PVT | POINT OF VERTICAL TANGENT | ○   | MANHOLE          |
| PCC | POINT OF COMPOUND CURVE   | ○   | CATCH BASIN      |
| T/C | TOP OF CASTING            | PC  | POINT OF CURVE   |
| T/E | TOP ELEVATION             | PT  | POINT OF TANGENT |
|     |                           | RP  | RADIUS POINT     |

#### LEGEND OF EXIST. SERVICES

|        |                |        |               |
|--------|----------------|--------|---------------|
| 880    | CONTOUR        | 040.25 | SPOT EL.      |
| 570.21 | CO-ORDINATES   | MIC    | MICH. BELL    |
| ○      | STORM SEWER    | ○      | TELE.         |
| ○      | SANITARY SEWER | ○      | LIGHT POLE    |
| ○      | WATER LINE     | ○      | SIGN          |
| ○      | GAS LINE       | ○      | SET IRON PIPE |
| -      | ELECTRIC LINE  | ○      |               |

#### NOTES:

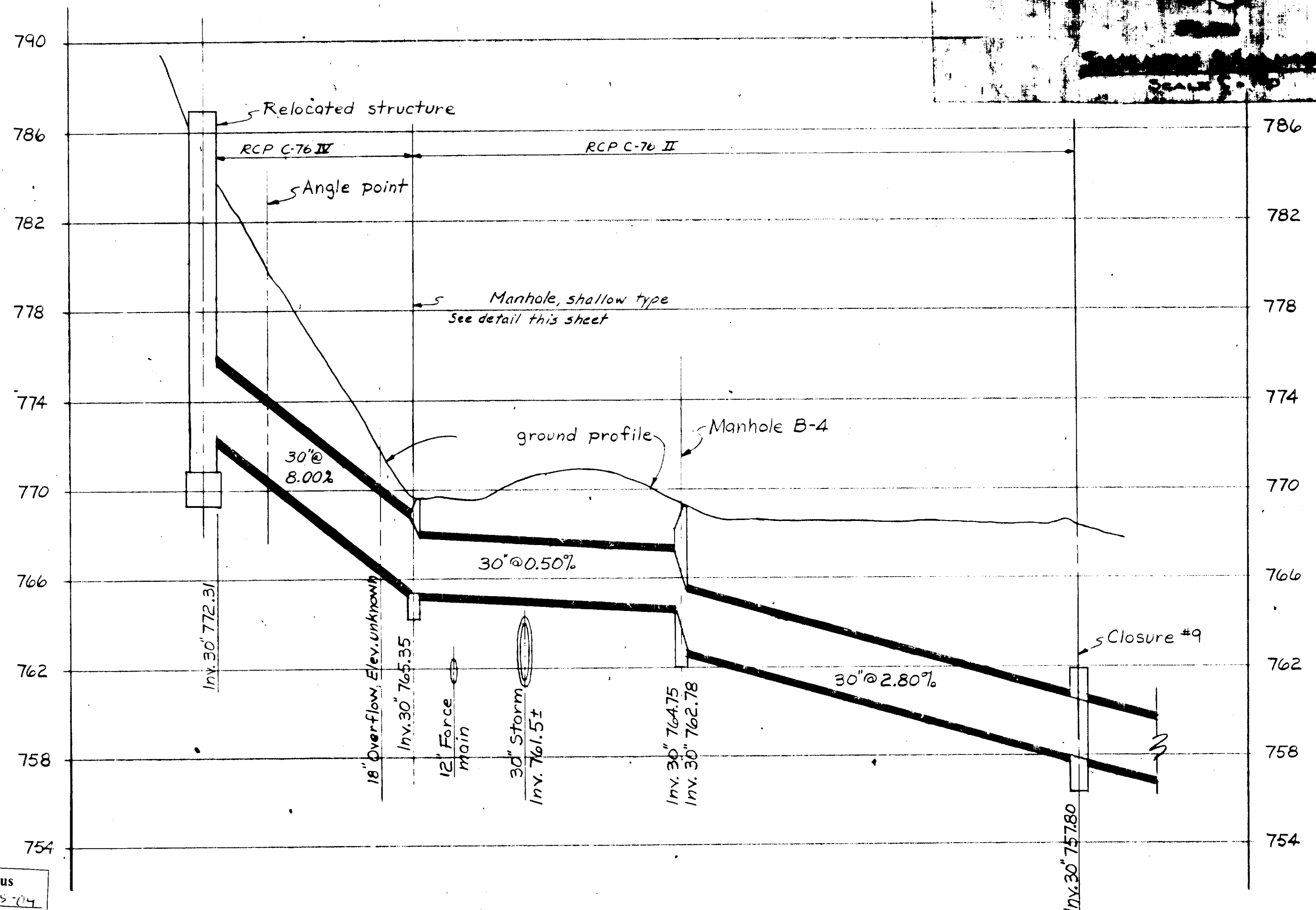
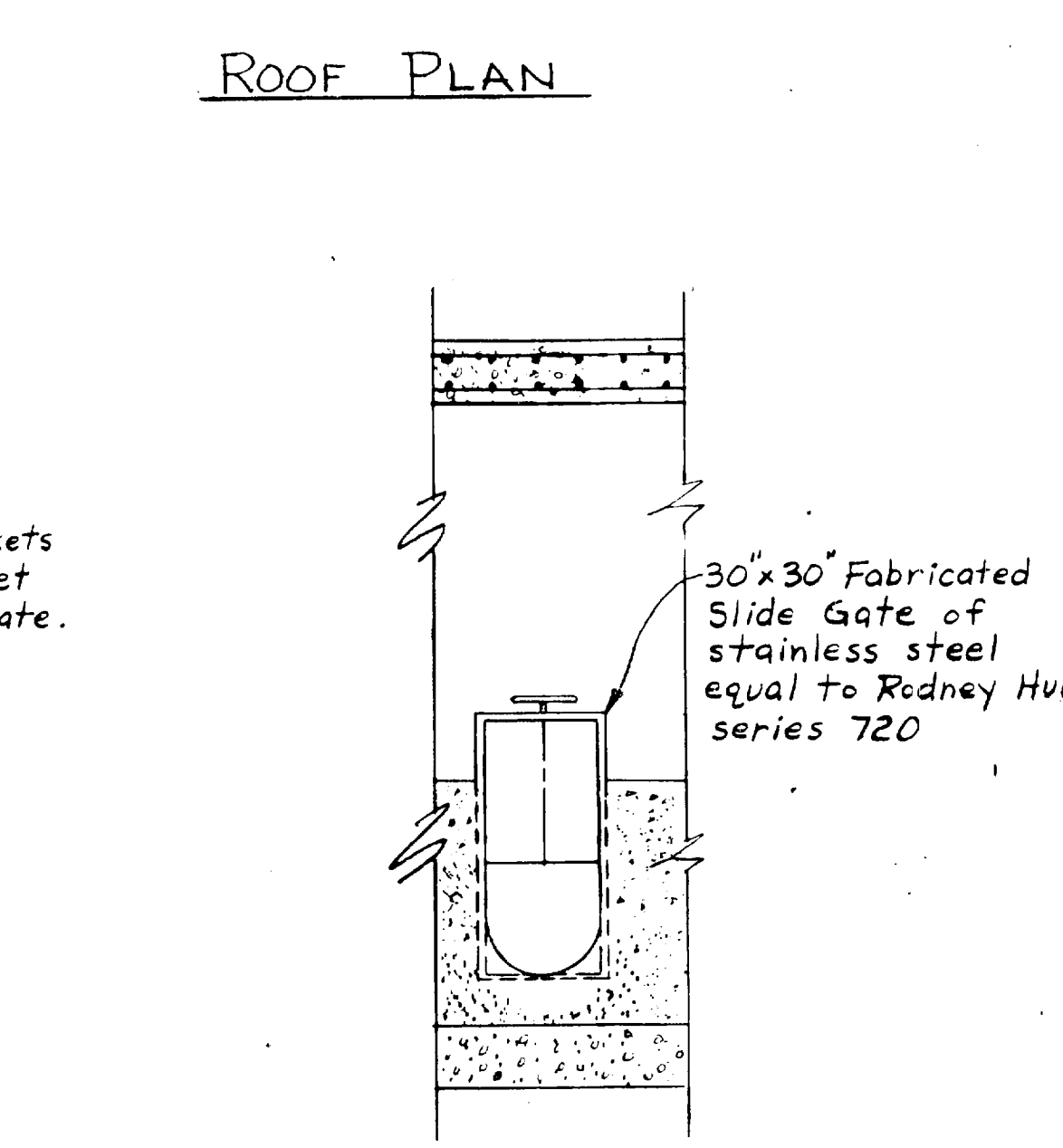
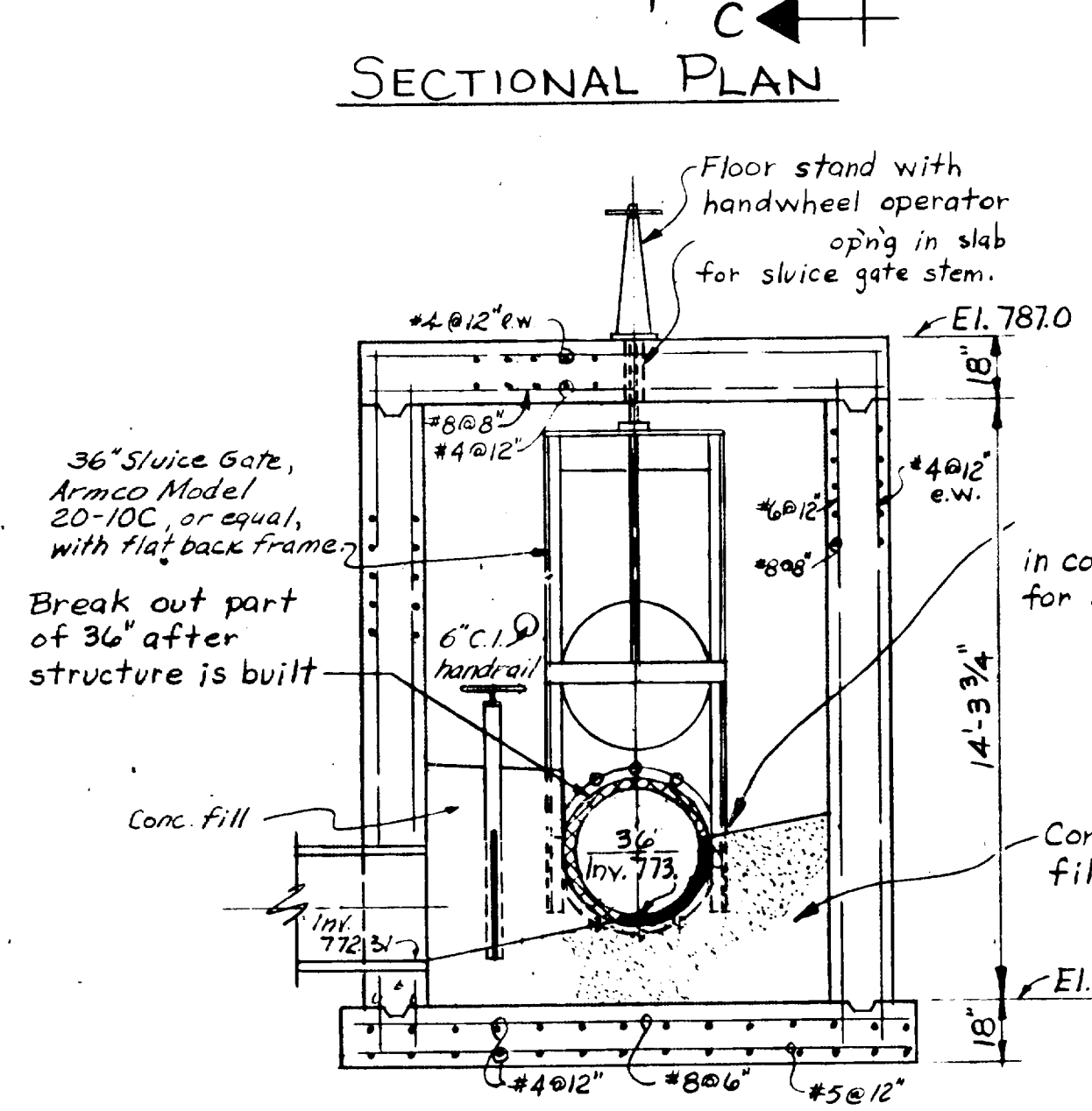
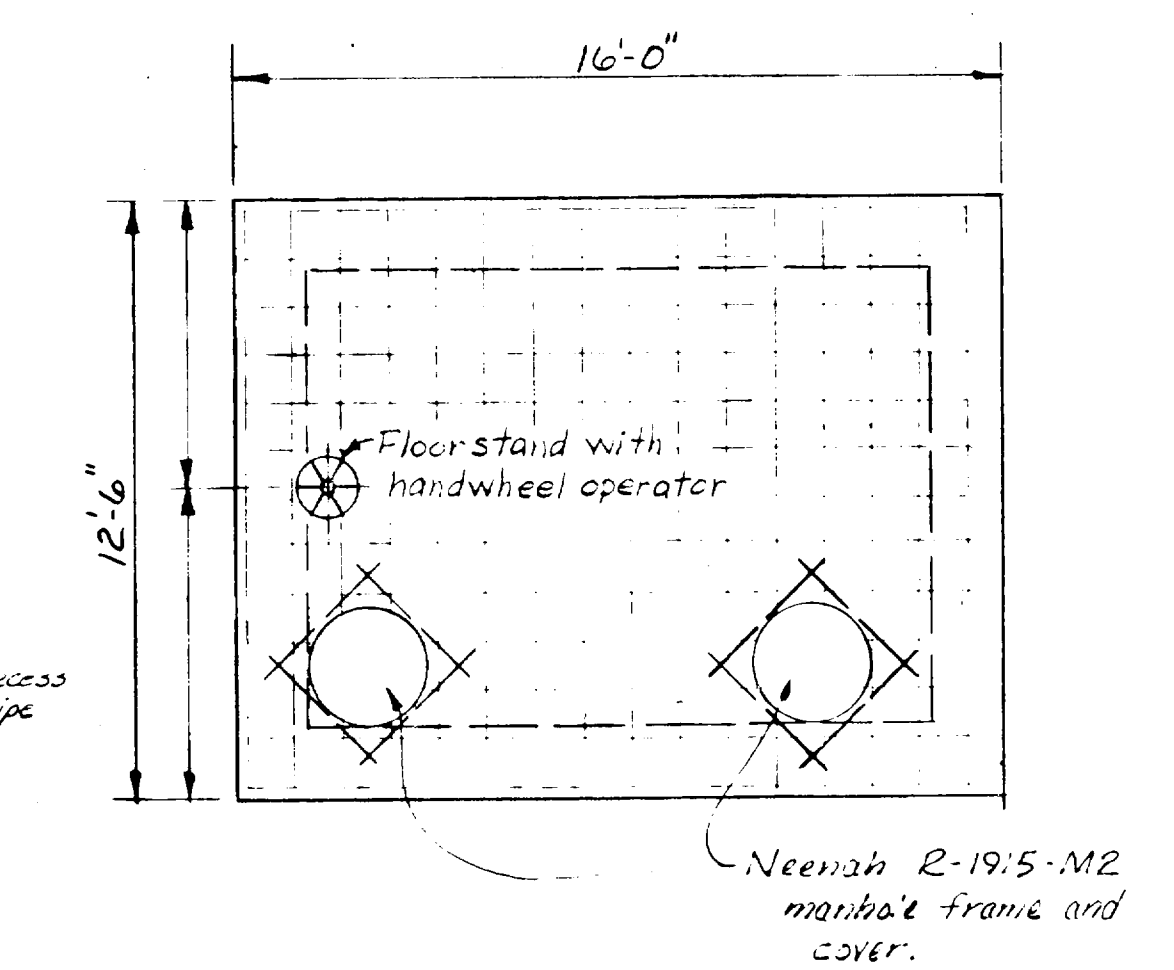
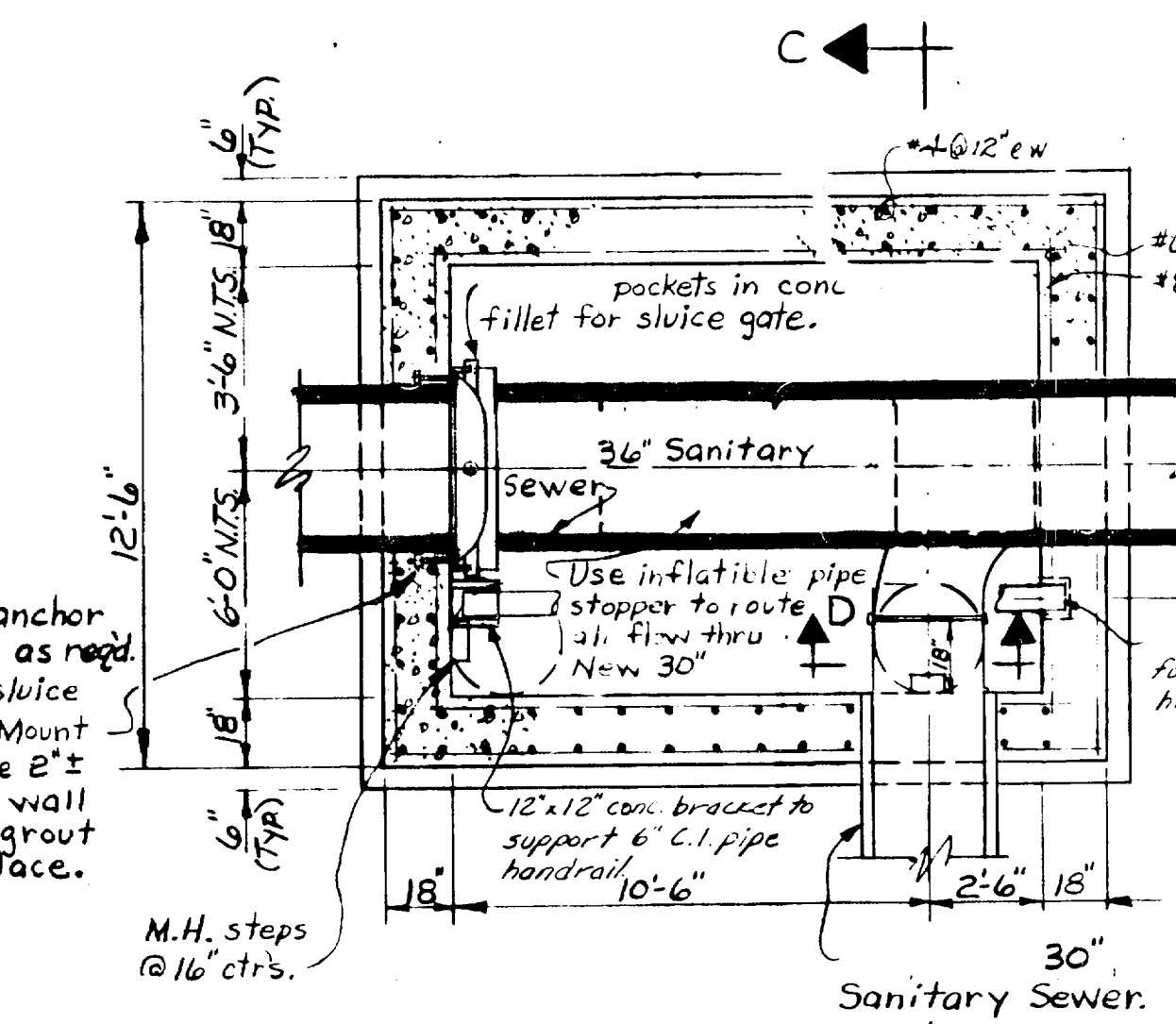
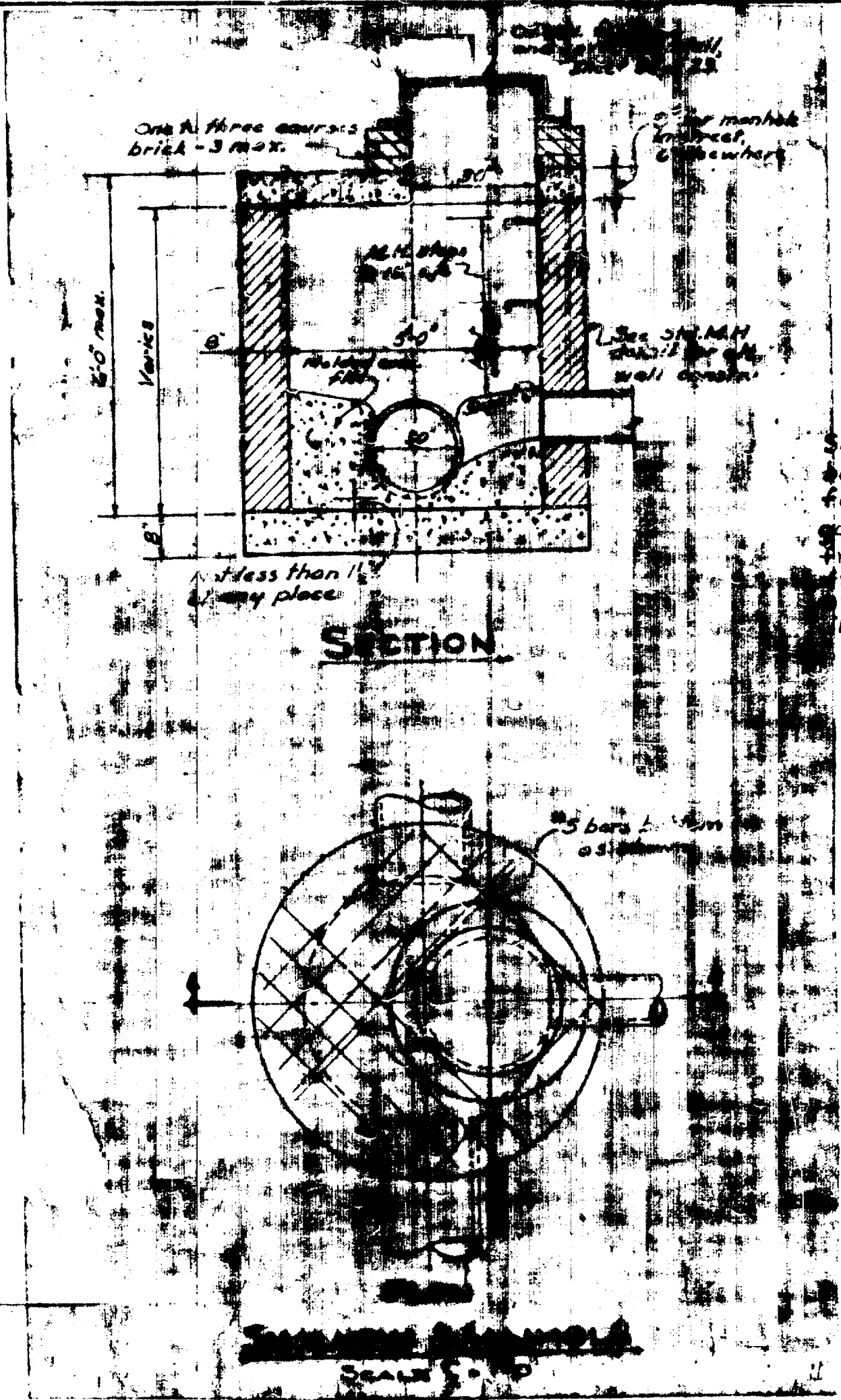
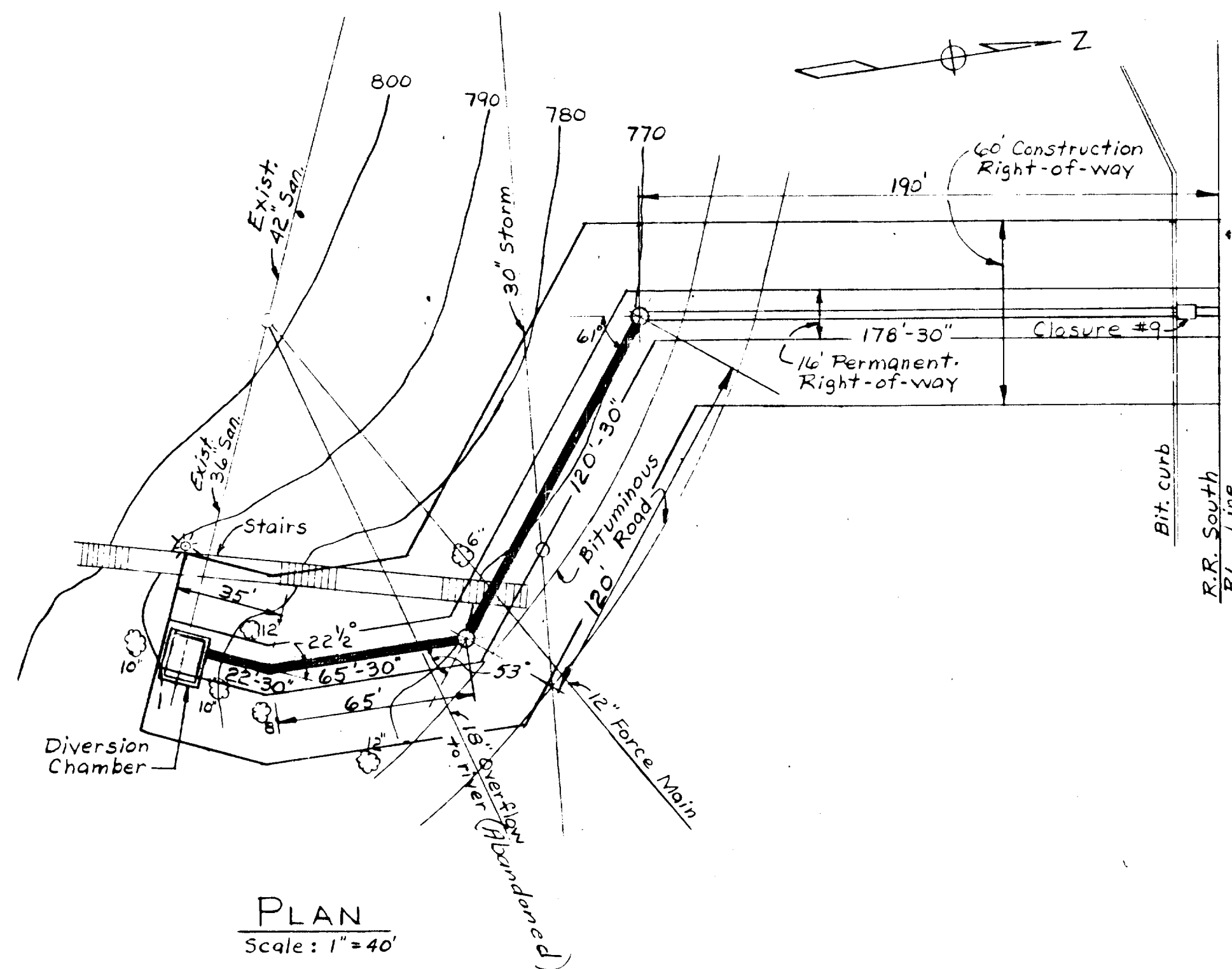
- CONTOURS COMPILED BY ABRAMS AERIAL SURVEY CORPORATION FROM AERIAL PHOTOGRAPHS; GRID ELEVATIONS BY WASHINGTON ENGINEERING COMPANY, INC. ARE ACTUAL GROUND SHOTS.
- ADD 280,000 TO ALL NORTH COORDINATES AND 480,000 TO ALL EAST COORDINATES TO CONFORM TO THE EXISTING GRID SYSTEM.



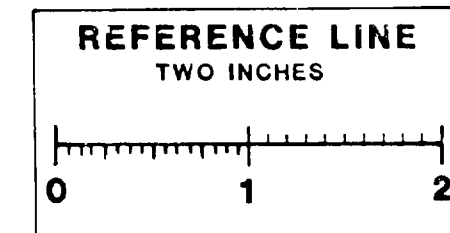
NOTE: ALL SEWER LINES AT THE BUILDING TO BE PLUGGED







**DIVERSION CHAMBER**  
Scale: 1/4"=1'-0"



Digital Status  
Scanned On: 7-15-04  
By: DGK  
Despeckled: Yes  
Vectors:  
O.C.R.:

**PROFILE**  
Scale: Hor. 1"=40'  
Vert. 1"=4'

|   |  |             |  |       |    |
|---|--|-------------|--|-------|----|
| MCMANEE, PORTER AND SEELEY<br>CONSULTING ENGINEERS<br>ANN ARBOR, MICHIGAN |  |             | WASHTENAW COUNTY, MICHIGAN<br>BOARD OF PUBLIC WORKS FOR<br>THE CITY OF ANN ARBOR |       |    |
| SCALE AS NOTED  | ISSUED APRIL 1972  |             | NORTHSIDE INTERCEPTOR<br>REVISIONS TO 30-INCH                                    |       |    |
| DRAWN RWE   | TRACED MJR   | CHECKED ZFB | SANITARY SEWER AND DIVERSION CHAMBER   |       |    |
| ISSUE   | NATURE OF REVISION   | DATE        | CONTRACT   | SHEET |    |
|   | Plan and profile re-<br>location at 30" sanitary<br>and revisions to<br>Diversion Chamber. | 5-17-72     | 70-11 WPC-Mich 1611  | S-4   | of |
| DIVERSION CHAMBER REVISIONS 5-17-72                                       |  |             | PS 6-C-5176 L.S. 24  |       |    |

CONFORMING TO CONSTRUCTION