

STATEMENT OF ESTIMATED QUANTITIES

City of Duluth Project No. 1207 / FEMA Site #400

| LINE NO. | NOTE NO. | SPEC. NO. | ITEM DESCRIPTION | UNIT OF MEASURE | TOTAL QUANTITIES |
|----------|----------|-----------|---------------------------------------|-----------------|------------------|
| 1 | | 2021.501 | MOBILIZATION | LUMP SUM | 1 |
| 2 | 1 | 2101.511 | CLEARING & GRUBBING | LUMP SUM | 1 |
| 3 | 2 | 2104.503 | REMOVE SIDEWALK | SQ YD | 45 |
| 4 | | 2104.502 | REMOVE SIGN | EACH | 1 |
| 5 | 3 | 2104.501 | REMOVE DEBRIS | LUMP SUM | 1 |
| 6 | | 2104.511 | SAWING CONCRETE SIDEWALK (FULL DEPTH) | LIN FT | 10 |
| 7 | | 2105.501 | COMMON EXCAVATION (P) | CU YD | 15 |
| 8 | 4 | 2105.523 | COMMON BORROW | CU YD | 250 |
| 9 | 5 | 2105.525 | TOPSOIL BORROW | CU YD | 45 |
| 10 | | 2211.503 | AGGREGATE BASE (CV), CLASS 5 | CU YD | 6 |
| 11 | | 2511.515 | GEOTEXTILE FILTER TYPE IV FOR RIP RAP | SQ YD | 16 |
| 12 | 7 | 2411.501 | STRUCTURAL CONCRETE (3Y43) | CU YD | 13 |
| 13 | | 2511.501 | RANDOM RIP RAP CLASS III | CU YD | 12 |
| 14 | 6 | 2521.501 | 4" CONCRETE WALK | SQ FT | 410 |
| 15 | | 2563.601 | TRAFFIC CONTROL | LUMP SUM | 1 |
| 16 | | 2573.502 | SILT FENCE, TYPE HEAVY DUTY | LIN FT | 25 |
| 17 | | 2573.540 | FILTER LOG, TYPE WOOD FIBER BIOROLL | LIN FT | 240 |
| 18 | | 2573.506 | SEDIMENT TRAP EXCAVATION | CU YD | 3 |
| 19 | 5 | 2575.502 | SEEDING | ACRE | 0.07 |
| 20 | 5 | 2575.502 | SEED MIXTURE 150 | POUND | 5 |
| 21 | 5 | 2575.532 | FERTILIZER, TYPE I | POUND | 10 |
| 22 | 5 | 2575.523 | EROSION CONTROL BLANKET, TYPE 4 | SQ YD | 340 |

CONSTRUCTION NOTES:

1. AREA OF CLEARING AND GRUBBING IS 0.06 ACRES.
2. ITEM INCLUDES REMOVAL OF APPROXIMATELY 81' OF DAMAGED EXISTING 5' CONCRETE SIDEWALK.
3. ITEM INCLUDES REMOVAL OF A LARGE FALLEN TREE AND DEBRIS IN THE STREAM BED.
4. ITEM WILL BE USED TO FILL AREA OF SLOPE FAILURE.
5. ITEM SHALL BE PLACED OVER ANY DISTURBED GROUND.
6. ITEM INCLUDES 81' OF NEW 5' WIDE CONCRETE SIDEWALK, 6" CLASS 5 BEDDING INCIDENTAL.
7. ITEM TO BE USED TO CONSTRUCT CONCRETE BOX CULVERT DETAIL AS SHOWN ON SHEET S1.0.



Structural, Civil and Forensic Engineering Services
www.nce-engineers.com

Project Name:
CITY OF DULUTH
Huntington Sidewalk and
Slope Repair
59th Ave. W. & Huntington St., Duluth, MN

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

David G. Boff
Lic. No.: 40926
Date: 2/5/14

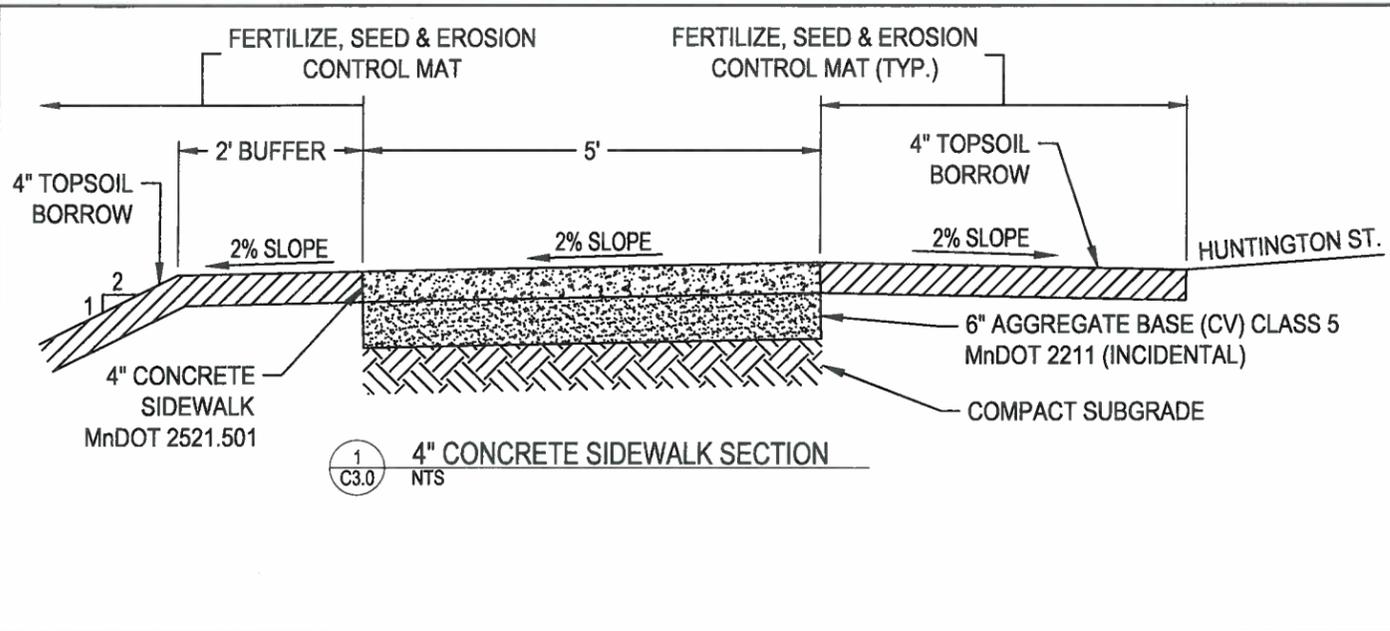
NCE Proj. #: 12-582-C
Date: 2/5/14
Drawn By: ARZ
Checked By: DGB

Revisions:

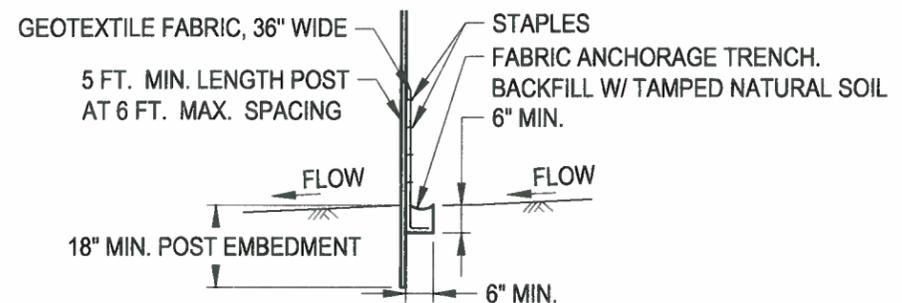
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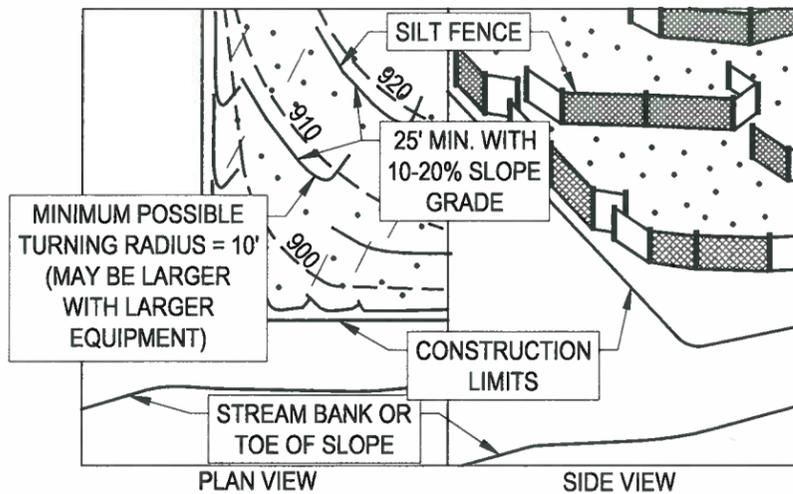
C2.0



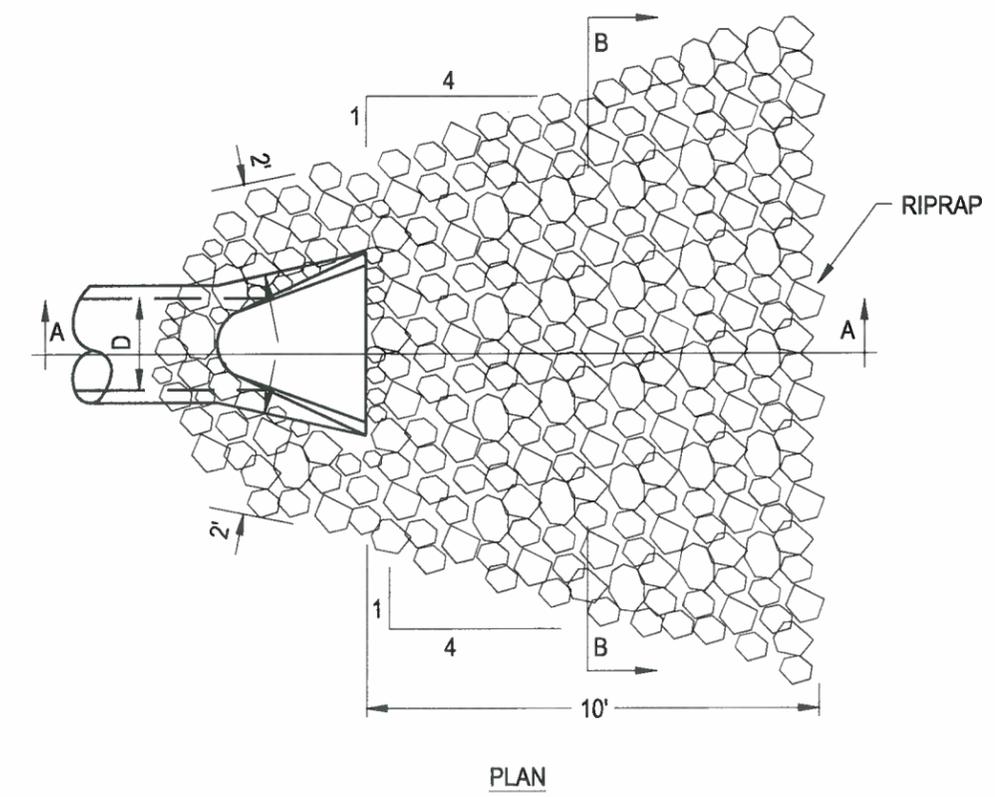
1
C3.0 NTS
4" CONCRETE SIDEWALK SECTION



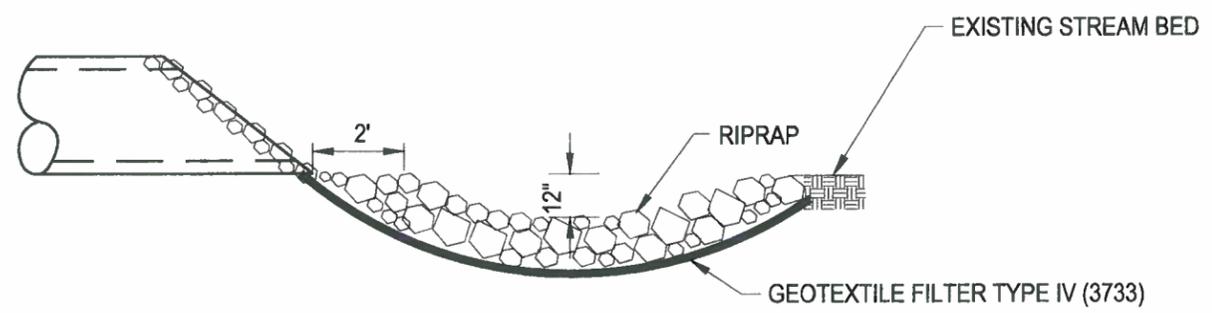
DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET
FLOW. MAXIMUM CONTRIBUTING AREA:
1 ACRE.



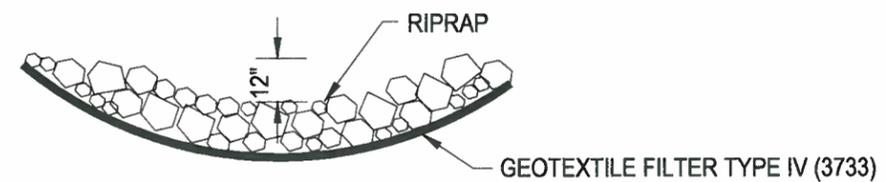
2
C3.0 NTS
SILT FENCE, J-HOOK INSTALLATION



PLAN

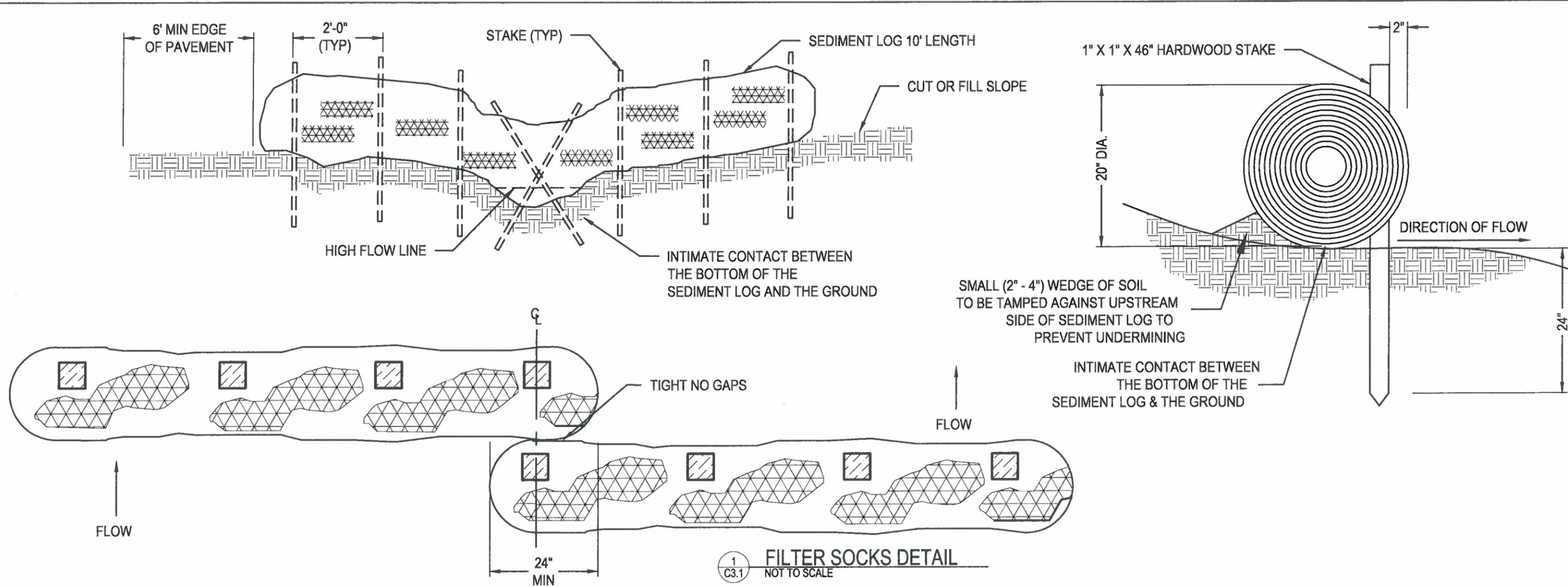


SECTION A-A

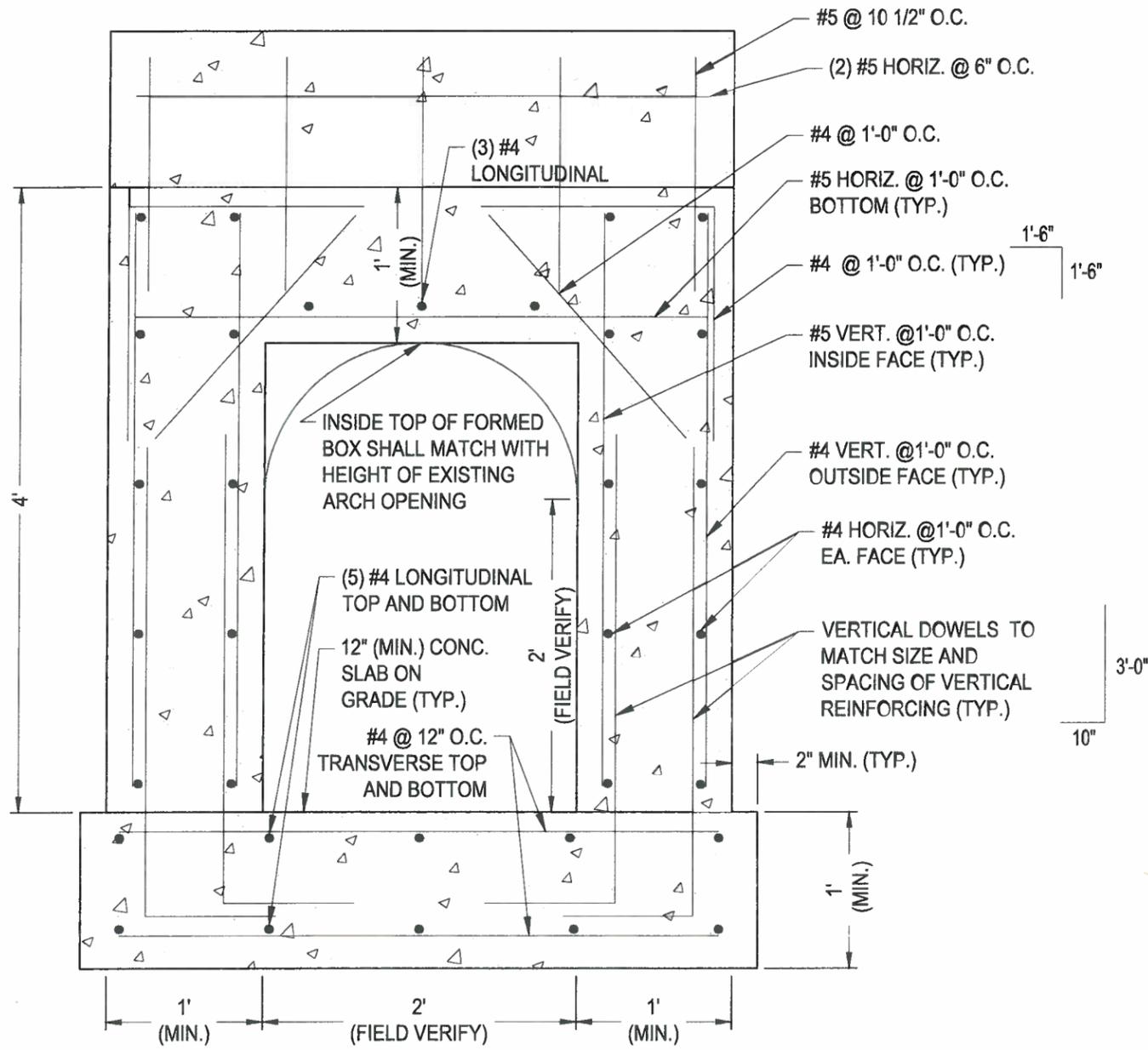


SECTION B-B

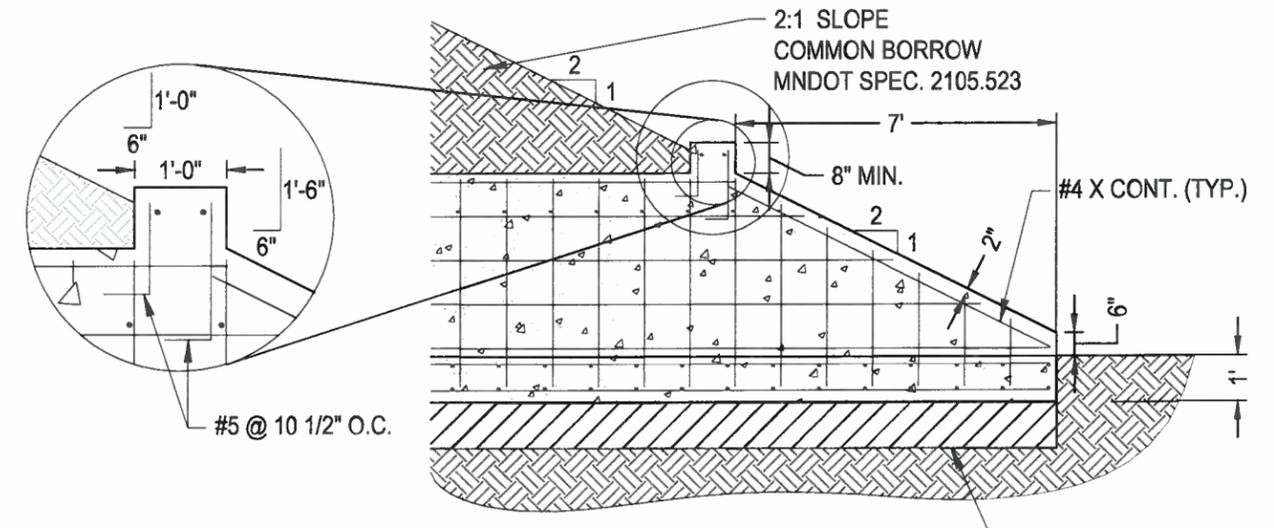
3
C3.0 NTS
CULVERT OUTLET DETAIL



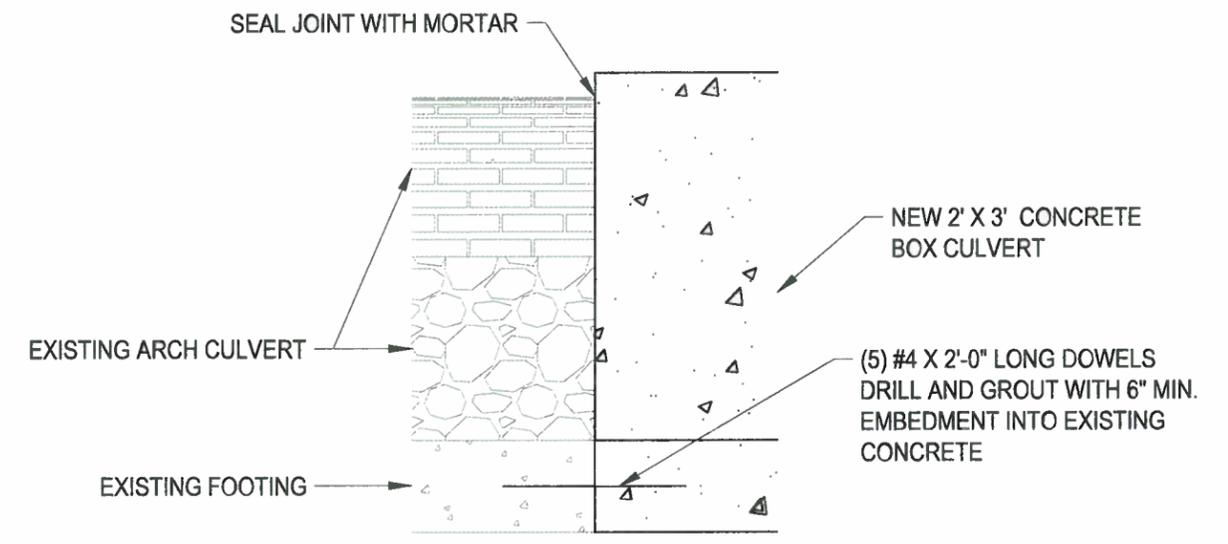
1
C3.1
FILTER SOCKS DETAIL
NOT TO SCALE



1 S1.0 CONCRETE BOX CULVERT DETAIL
SCALE: 1" = 1'



2 S1.0 BOX CULVERT OUTLET SIDE VIEW
SCALE: 1" = 4'



3 S1.0 CONNECTION DETAIL
SCALE: 1" = 2'

CONCRETE

- MIXING, BATCHING, TRANSPORTING, PLACING, AND CURING OF ALL CONCRETE, AND SELECTION OF CONCRETE MATERIALS, SHALL CONFORM TO ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS," EXCEPT AS NOTED BELOW. PROPORTIONS OF AGGREGATE TO CEMENTITIOUS PASTE SHALL BE SUCH AS TO PRODUCE A DENSE, WORKABLE MIX THAT CAN BE PLACED WITHOUT SEGREGATION OR EXCESS FREE SURFACE WATER.
- ALL CONCRETE USED IN HORIZONTAL SURFACES EXPOSED TO THE WEATHER SHALL CONTAIN AN ACCEPTABLE ADMIXTURE TO PRODUCE AIR-ENTRAINED CONCRETE WITH TOTAL AIR CONTENT, AS NOTED IN THE CONCRETE MIX SPECIFICATION TABLE. TOLERANCE FOR AIR CONTENT SHALL BE +/- 1 PERCENT. AIR CONTENT SHALL BE MEASURED AT THE DISCHARGE OF THE TRUCK. IF CONCRETE IS PUMPED, AIR CONTENT SHALL BE MEASURED AT THE DISCHARGE END OF THE PUMP LINE. TESTS FOR AIR CONTENT SHALL MEET ASTM C172 REQUIREMENTS.
- MIX DESIGNS LISTED BELOW SHALL BE SUBMITTED TO THE ARCHITECT AND APPROVED PRIOR TO USE. SUBMITTALS SHALL INCLUDE TEST DATA THAT CONFIRMS THE STRENGTH OF EACH MIX PER ACI 318 CHAPTER 5. SELECTION OF CONCRETE MIX PROPORTIONS SHALL BE IN ACCORDANCE WITH ACI 301. MIX PROPORTIONS SHALL MEET OR EXCEED THE REQUIREMENTS LISTED BELOW FOR THE LOCATIONS NOTED. THE MORE STRINGENT OF THE REQUIREMENTS LISTED SHALL GOVERN.

- MAXIMUM SIZE OF AGGREGATE SHALL BE AS LISTED BELOW. MAXIMUM FLY ASH AS A PERCENTAGE OF TOTAL WEIGHT OF CEMENTITIOUS MATERIAL SHALL BE 30 PERCENT. FLY ASH SHALL BE CLASS C OR F, MEETING ASTM C618 REQUIREMENTS. WATER/CEMENT RATIO SHALL BE BASED ON TOTAL CEMENTITIOUS MATERIAL, INCLUDING FLY ASH AND OTHER POZZOLANIC MATERIALS.
- THE CONTRACTOR SHALL DETERMINE SLUMP. EACH CONCRETE MIX SUBMITTED SHALL HAVE THE SLUMP SPECIFIED. SLUMP SHALL BE MEASURED AT THE DISCHARGE OF THE TRUCK. IF CONCRETE IS PUMPED, SLUMP SHALL BE MEASURED AT THE DISCHARGE END OF THE PUMP LINE. SLUMPS SHALL BE WITHIN +/- 1 INCH AND -2 INCHES OF THE SPECIFIED SLUMP.
- THE USE OF SUPER PLASTICIZERS AND WATER REDUCERS IS ALLOWED, BUT NOT REQUIRED. ALL ADMIXTURES SHALL BE CHLORIDE FREE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

| LOCATION | f' _c (PSI) | TEST AGE (DAYS) | MAX W/C RATIO | AIR CONTENT (%) | MAX AGGREGATE SIZE |
|--------------------|-----------------------|-----------------|---------------|-----------------|--------------------|
| SLABS ON GRADE | 4,000 | 28 | 0.50 | 6 | 3/4" |
| WALLS AND FOOTINGS | 4,000 | 28 | 0.44 | 6 | 3/4" |
| REINFORCED SLABS | 4,000 | 28 | .44 | 6 | 3/4" |

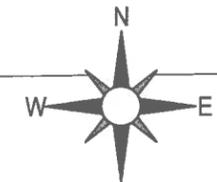
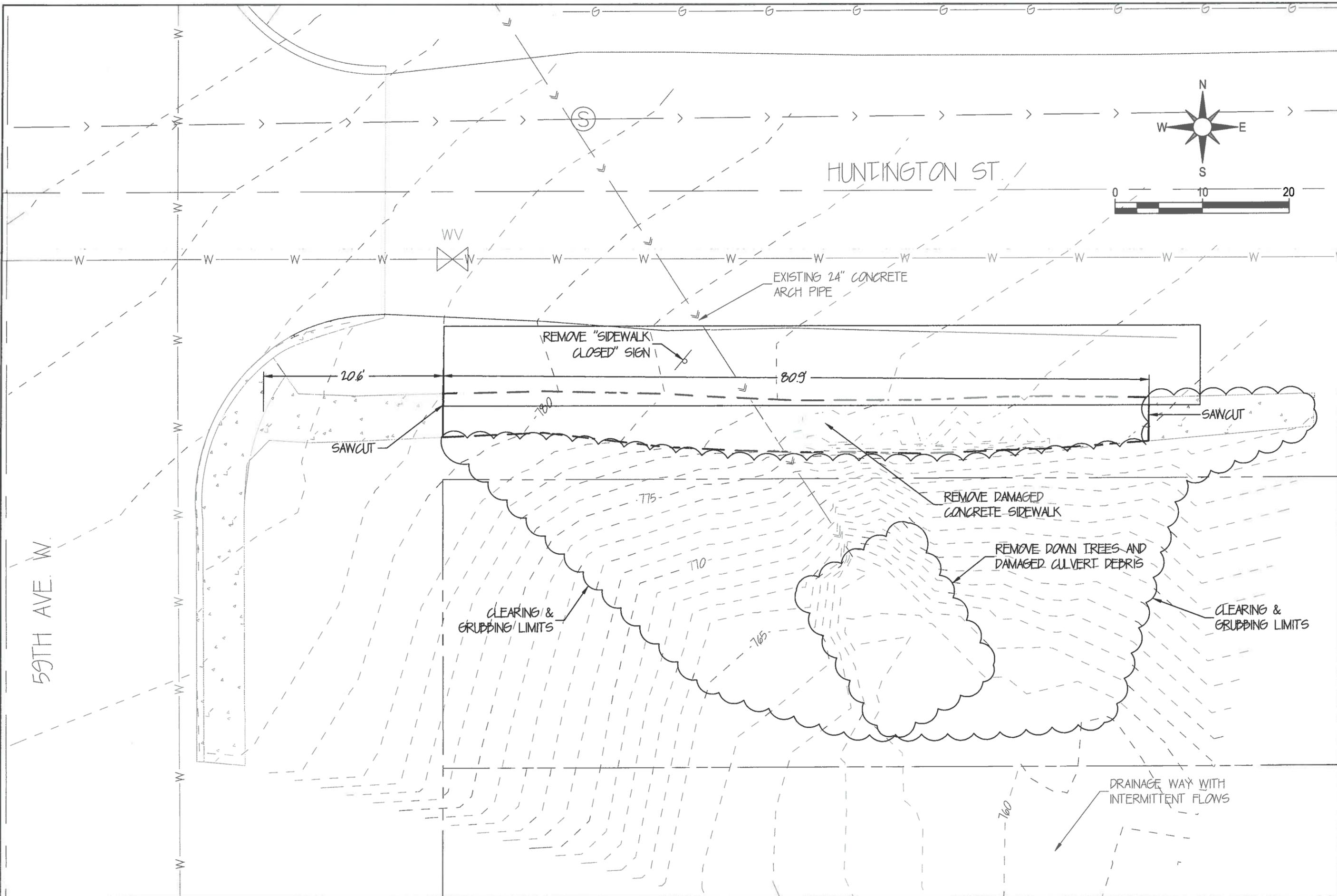
REINFORCING STEEL

- ALL REINFORCING SHALL BE NEW BILLET STOCK ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE. BARS SHALL BE SECURELY TIED IN PLACE WITH #16 DOUBLE-ANNEALED IRON WIRE. BARS SHALL BE SUPPORTED ON ACCEPTABLE CHAIRS. REINFORCING STEEL SHALL BE DETAIL IN ACCORDANCE WITH THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING OF REINFORCED CONCRETE STRUCTURES. CONTRACTOR SHALL COORDINATE REINFORCING STEEL PLACEMENT DETAILS AND PROVIDE TEMPLATES FOR PLACING STEEL IN CONGESTED AREAS AS NECESSARY. SHOP DRAWINGS (INCLUDING PLACING PLANS AND ELEVATIONS) SHALL BE SUBMITTED TO, AND REVIEWED BY, THE ARCHITECT/ENGINEER BEFORE STARTING FABRICATION.
- NO REINFORCING BARS SHALL BE SPLICED BY WELDING. AT THE CONTRACTOR'S OPTION, MECHANICAL BUTT SPLICING USING AN EXOTHERMIC WELDING PROCESS AND HIGH-STRENGTH SLEEVES OR MECHANICAL CONNECTION SPLICING MAY BE USED, PROVIDED THAT THE MECHANICAL SPLICES SHALL HAVE A CURRENT ICC-ES REPORT DEMONSTRATING THAT THE PRODUCT CAN ACHIEVE A MINIMUM TENSILE STRENGTH OF 125 PERCENT OF THE SPECIFIED YIELD STRENGTH OF THE BAR. SPLICE DEVICES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. REINFORCING BARS SHALL BE LAP SPLICED FOR TENSION (LSB) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- MINIMUM CAST-IN-PLACE CONCRETE COVER OVER REINFORCING STEEL, UNLESS NOTED OTHERWISE, SHALL BE AS FOLLOWS:
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: ALL SIZES: 3 INCHES
 - CONCRETE EXPOSED TO EARTH OR WEATHER: #6 BAR OR SMALLER: 1 1/2 INCHES #6 BAR OR LARGER: 2 INCHES

SPECIAL INSPECTION

- THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION AND TESTING PER IBC SECTION 1704.
- THIS WORK SHALL BE PERFORMED BY A SPECIAL INSPECTOR CERTIFIED BY THE GOVERNING BUILDING OFFICIAL TO PERFORM THE TYPES OF INSPECTIONS AND TESTS SPECIFIED.
- THE FREQUENCY OF INSPECTIONS AND TESTING SHALL BE AS OUTLINED IN THE IBC TABLE ITEMS LISTED BELOW.
- DEFICIENCIES SHALL BE REPORTED DAILY TO THE CONTRACTOR.
- SUMMARY REPORTS SHALL BE DISTRIBUTED WEEKLY TO THE OWNER, ARCHITECT, CONTRACTOR, BUILDING OFFICIAL, AND STRUCTURAL ENGINEER.

| ITEM | DESCRIPTION (SEE IBC SECT. 1704) | IBC TABLE REQUIREMENT |
|-------------------|--|---|
| CONCRETE | CONCRETE THAT IS PART OF THE STRUCTURE | TABLE 1704.4 ITEMS 4, 5, 6, 7, 9 AND 10 |
| REINFORCING STEEL | A. PLACEMENT OF REINFORCING STEEL | TABLE 1704.1 ITEM 1 |



Northland
 Consulting Engineers L.L.P.
 Structural, Civil and Forensic Engineering Services
 www.nce-engineers.com

Project Name:
CITY OF DULUTH
 Huntington Sidewalk and
 Slope Repair
 59th Ave. W. & Huntington St., Duluth, MN

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

David G. Boff
 Lic. No.: 40926
 Date: 2/5/14

NCE Proj. #: 12-582-C
 Date: 2/5/14
 Drawn By: ARZ
 Checked By: DGB

Revisions:

EXISTING CONDITIONS & REMOVALS
 sheet title
 sheet number
C4.0

