

Part III
Attachment III-C
Appendix III-C.2

FACILITY SURFACE WATER DRAINAGE DRAWINGS

Pescadito Environmental Resource Center
MSW No. 2374
Webb County, Texas

PESCADITO
ENVIRONMENTAL RESOURCE CENTER

Initial Submittal March 2015
Supplement April 2015
Revised September 2015

Prepared for:
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1116 Calle del Norte
Laredo, TX 78041

Prepared by:
CB&I Environmental and
Infrastructure, Inc.



12005 Ford Rd, Suite 600
Dallas, TX 75234

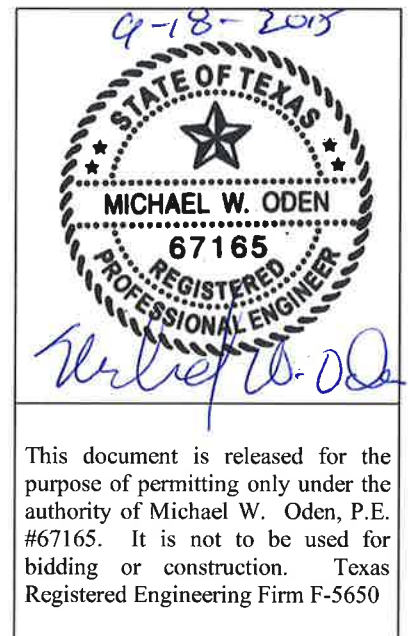
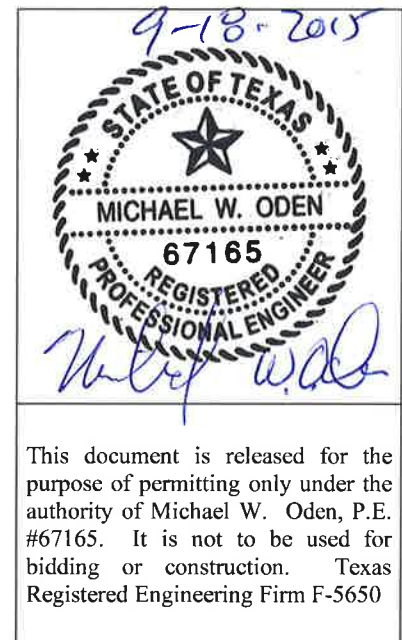
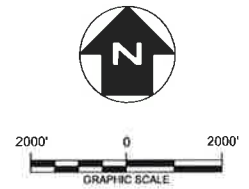






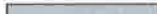


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**LEGEND**

-  PERMIT BOUNDARY
-  WASTE UNIT BOUNDARY
-  PRE-DEVELOPMENT SUBCATCHMENT BOUNDARIES
-  STORMWATER FLOW PATH
-  STORMWATER FLOW DIRECTION
-  JUNCTION 1 (SEE NOTE 5)
-  100-YEAR FLOODPLAIN (PRE-CLOMR)

NOTES

1. CONTOURS ADAPTED FROM TEXAS NATURAL RESOURCE INFORMATION SYSTEM "TEXAS ELEVATION FRAMEWORK (HYPSOGRAPHY)" QUADRANGLES.
2. BOUNDARY AND IMPROVEMENT SURVEY DEVELOPED BY MEJIA ENGINEERING COMPANY ON AUGUST 15, 2011 AND JUNE 9, 2014.
3. FOR CLARITY, NOT ALL SITE FEATURES MAY BE SHOWN.
4. THE NEED FOR FLEXIBILITY TO ACCOMMODATE ADJUSTMENTS AND MODIFICATIONS IS ANTICIPATED CONSIDERING THE SIZE, COMPLEXITY, AND LIFE OF THE PROJECT.
5. JUNCTION 1 REPRESENTS THE MOST DOWNSTREAM ELEMENT WITHIN THE STORMWATER MODELS AND IS THE MAIN POINT OF COMPARISON BETWEEN MODELS.
6. "DRAINAGE AREAS" (DA) ARE TAKEN FROM THE CONDITIONAL LETTER OF MAP REVISION, PREPARED BY CB&I ENVIRONMENTAL AND INFRASTRUCTURE, INC. APPROVED NOVEMBER 21, 2014.

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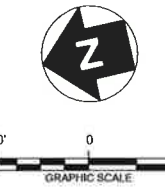
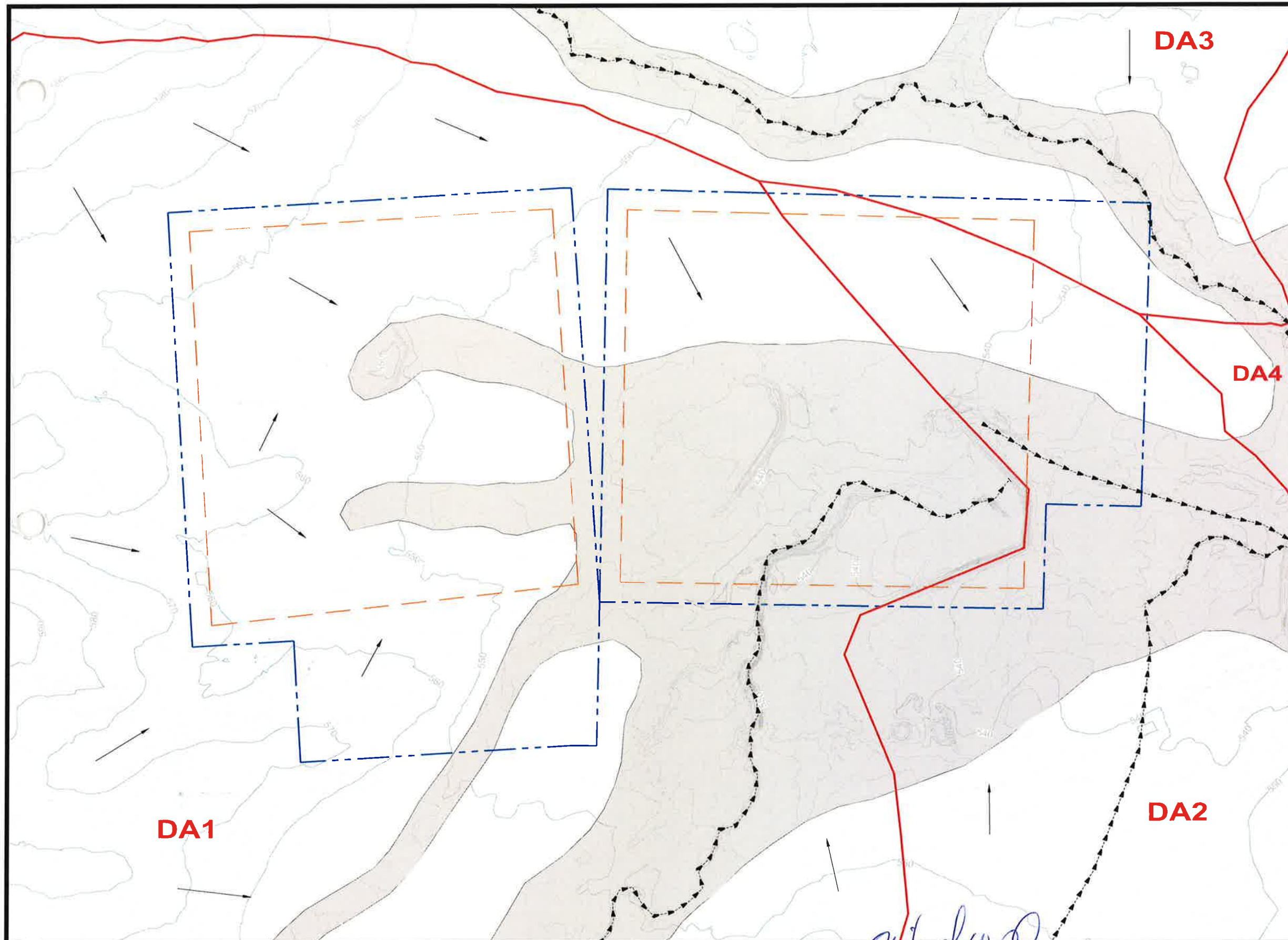
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WEBB COUNTY, TEXAS
MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT
PRE-DEVELOPMENT CONDITIONS - REGIONAL OVERVIEW**

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|--------------|--------|-------------|----------------|
| PROJ. NO.: | 148866 | DATE: | APRIL 2015 |
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LEGEND

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- PRE-DEVELOPMENT SUBCATCHMENT BOUNDARIES
- STORMWATER FLOW PATH
- STORMWATER FLOW DIRECTION
- 100-YEAR FLOODPLAIN (PRE-CLOMR)

NOTES

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010.
2. BOUNDARY AND IMPROVEMENT SURVEY DEVELOPED BY MEJIA ENGINEERING COMPANY ON AUGUST 15, 2011 AND JUNE 9, 2014.
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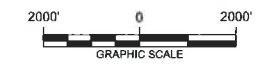
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**FACILITY SURFACE WATER DRAINAGE REPORT
PREDEVELOPMENT CONDITIONS
FACILITY AND IMMEDIATE SURROUNDINGS**

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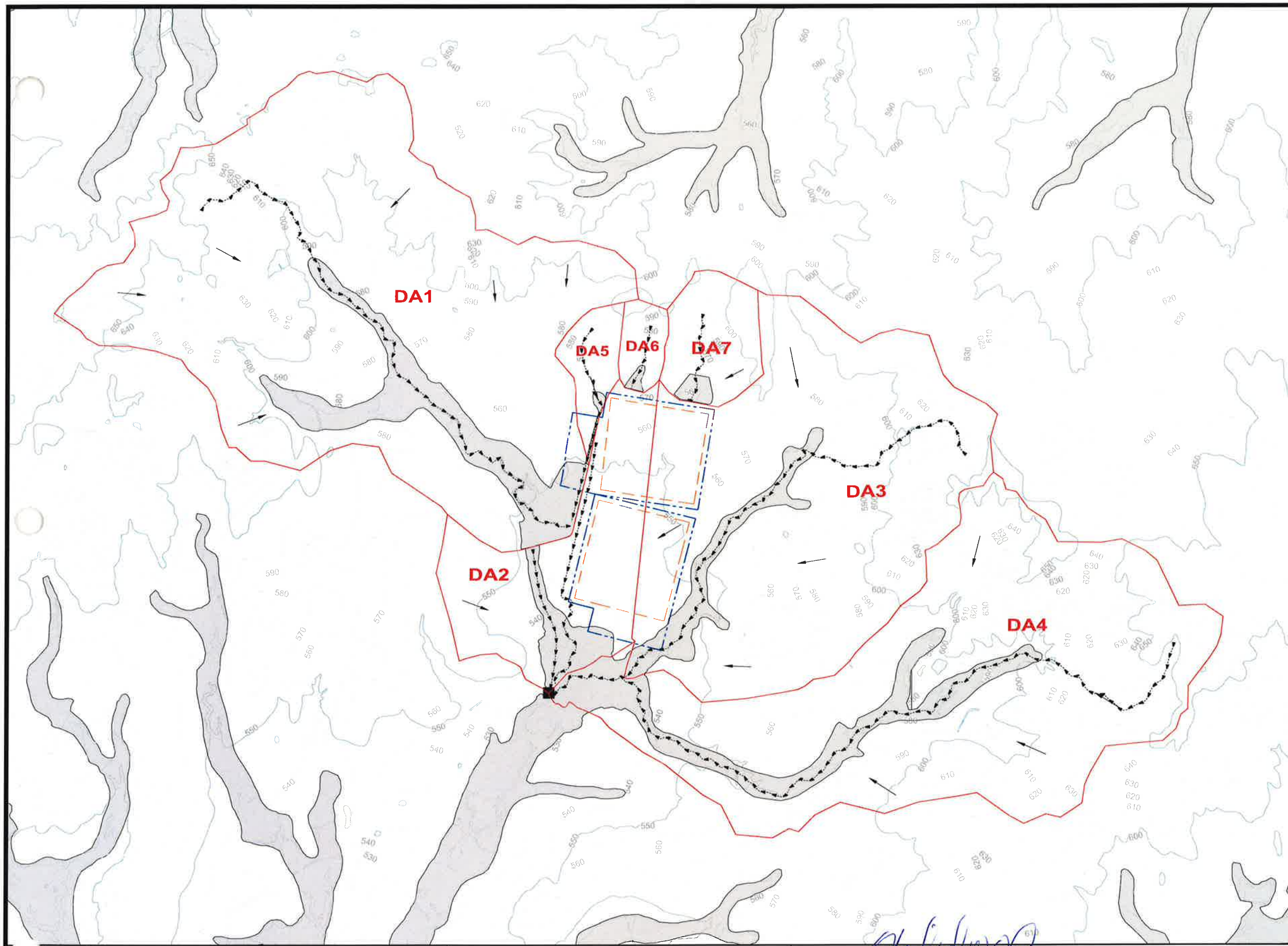


LEGEND

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- INTERMEDIATE CONDITION SUBCATCHMENT BOUNDARIES
- STORMWATER FLOW PATH
- STORMWATER FLOW DIRECTION
- JUNCTION 1 (SEE NOTE 5)
- CLOMR 100-YEAR FLOODPLAIN

NOTES

1. CONTOURS ADAPTED FROM TEXAS NATURAL RESOURCE INFORMATION SYSTEM "TEXAS ELEVATION FRAMEWORK (HYPSOGRAPHY)" QUADRANGLES.
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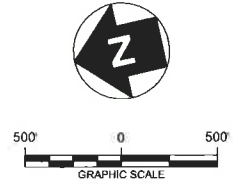
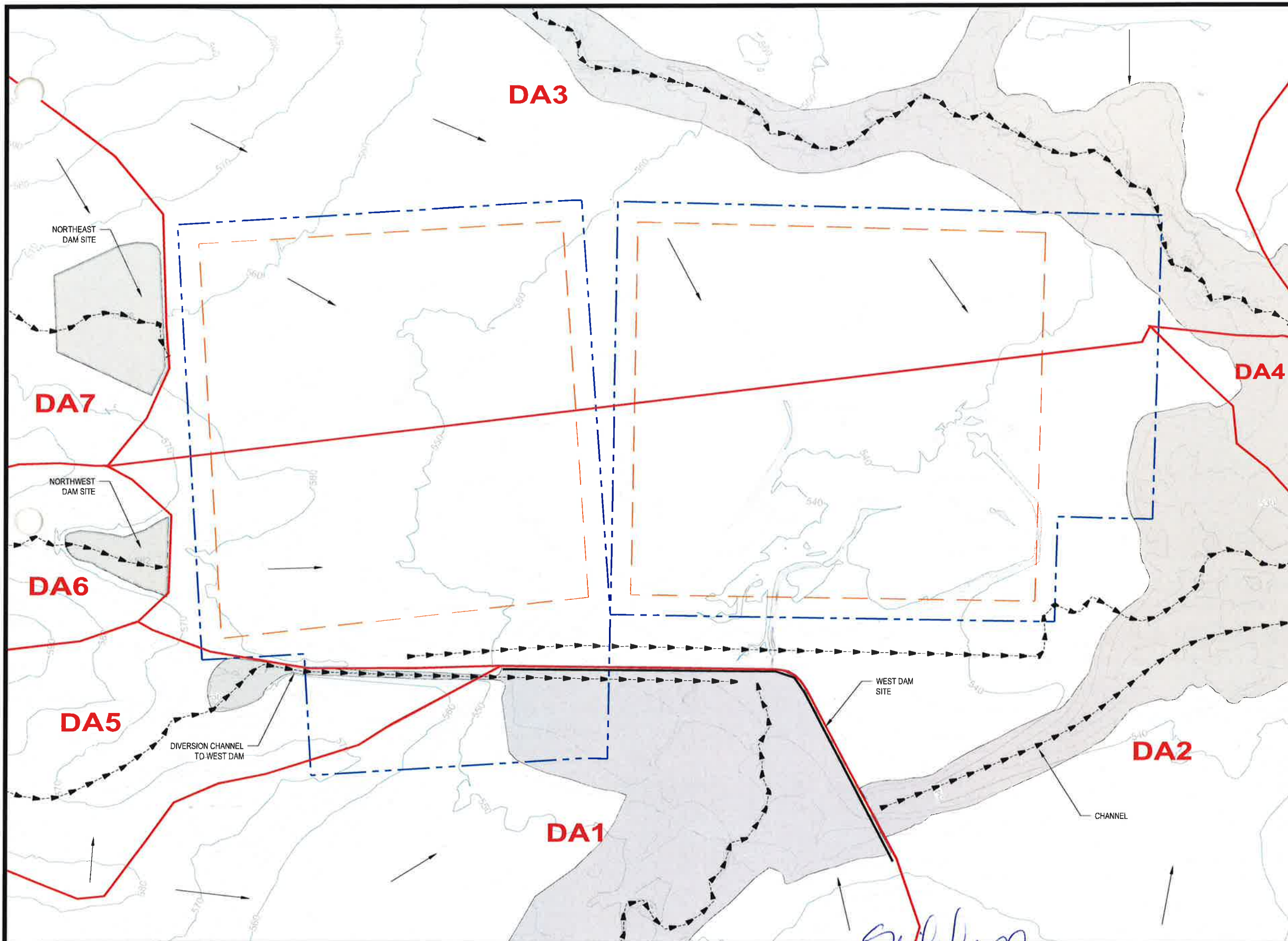
WEBB COUNTY, TEXAS

MSW 2374

FACILITY SURFACE WATER DRAINAGE REPORT

INTERMEDIATE DEVELOPMENT CONDITIONS - REGIONAL OVERVIEW

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LEGEND

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- INTERMEDIATE CONDITIONS SUBCATCHMENT BOUNDARIES
- ▲-▲-▲- STORMWATER FLOW PATH
- STORMWATER FLOW DIRECTION
- CLOMR 100-YEAR FLOODPLAIN

NOTES

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010 (MODIFIED TO INCLUDE CLOMR IMPROVEMENTS).
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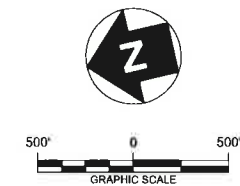
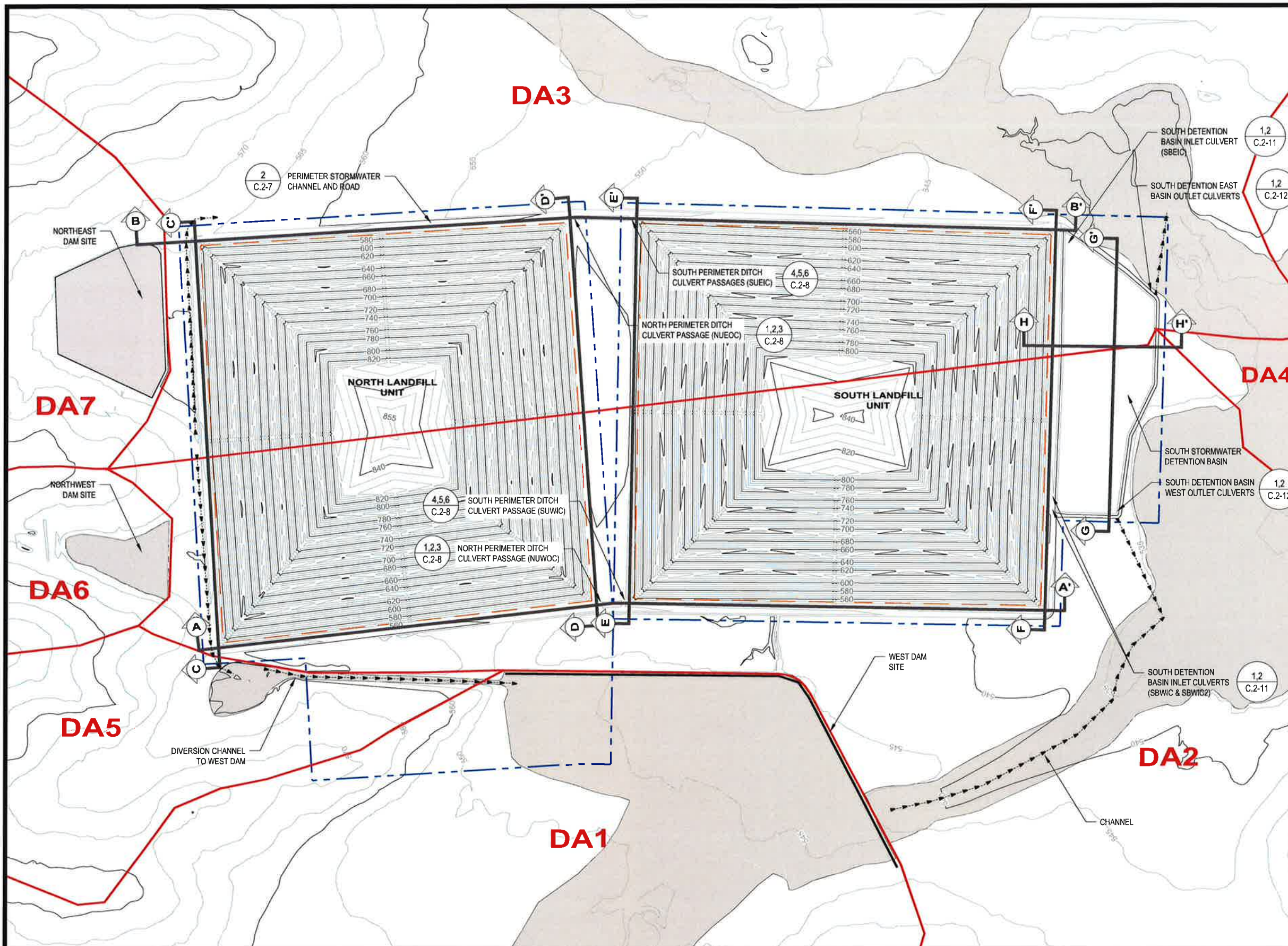
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**FACILITY SURFACE WATER DRAINAGE REPORT
INTERMEDIATE DEVELOPMENT CONDITIONS
FACILITY AND IMMEDIATE SURROUNDINGS**

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| APPROVED BY: MWO | |



LEGEND

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- CLOMR 100-YEAR FLOODPLAIN
- PERIMETER CHANNEL AND DETENTION BASIN PROFILE LOCATIONS
- STORMWATER FLOW

NOTES

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010 (MODIFIED TO INCLUDE CLOMR IMPROVEMENTS).
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5. PROFILES A-H ARE LOCATED ON DRAWINGS 9-11 OF APPENDIX III-C.2.
6. DRAINAGE AREAS FOR POST-DEVELOPMENT CONDITIONS ARE UNCHANGED FROM INTERMEDIATE CONDITIONS SHOWN IN DRAWINGS 3 & 4 OF APPENDIX III-C.2.

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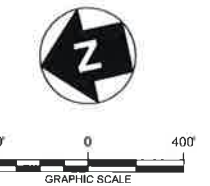
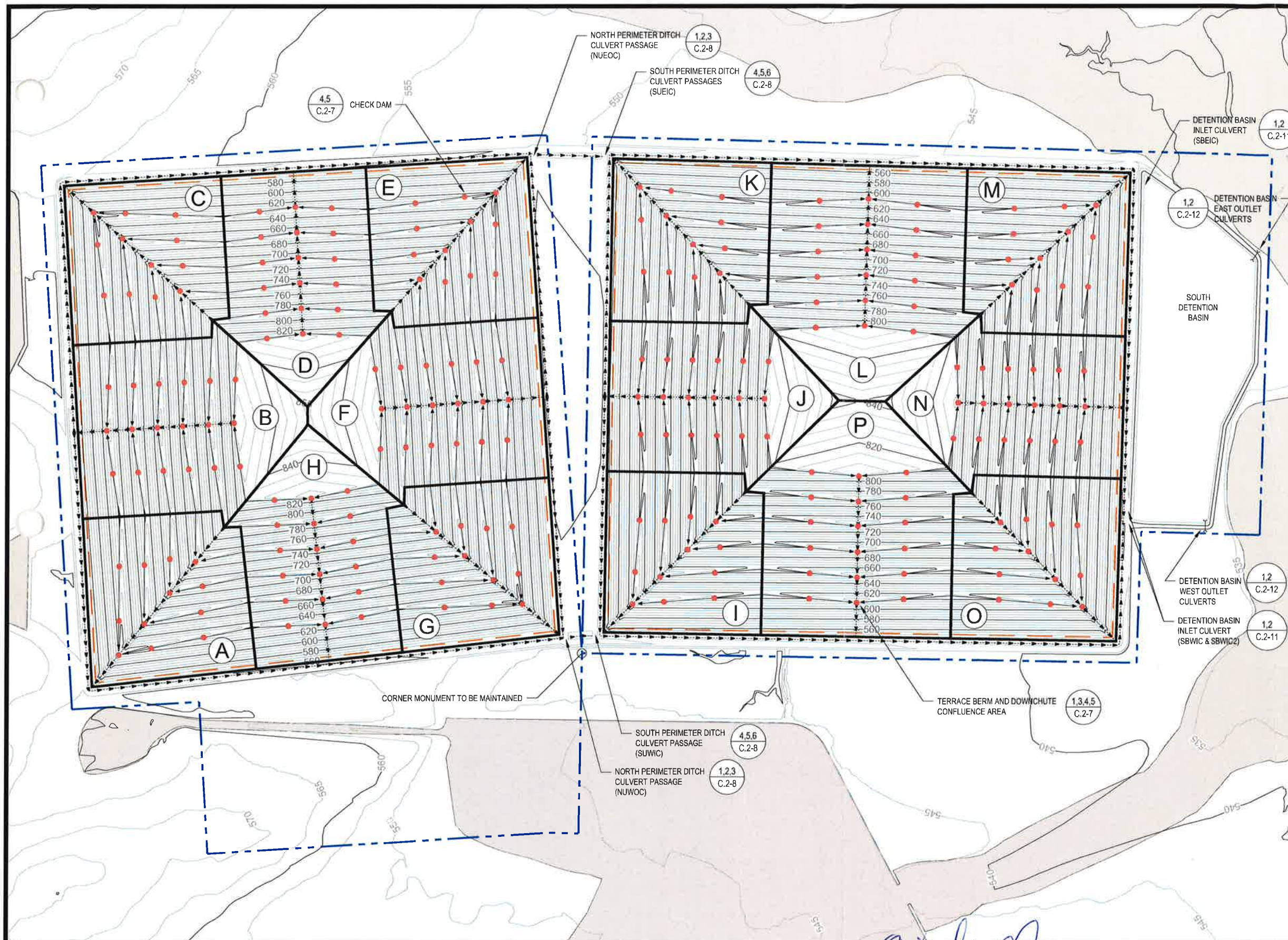
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**FACILITY SURFACE WATER DRAINAGE REPORT
POST-DEVELOPMENT CONDITIONS
FACILITY AND IMMEDIATE SURROUNDINGS**

| | |
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LEGEND

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- TERRACE BERM (FLOW DIRECTION SHOWN)
- DOWNCHUTE AND PERIMETER DITCH (FLOW DIRECTION SHOWN)
- A CATCHMENT IDENTIFICATION
- CLOMR 100-YEAR FLOODPLAIN
- CHECK DAM LOCATION

NOTES

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5. REFER TO APPENDIX III-C.3-2 FOR DETAILED SUBCATCHMENT DELINEATION FOR EACH CATCHMENT AREA SHOWN ON THIS DRAWING.

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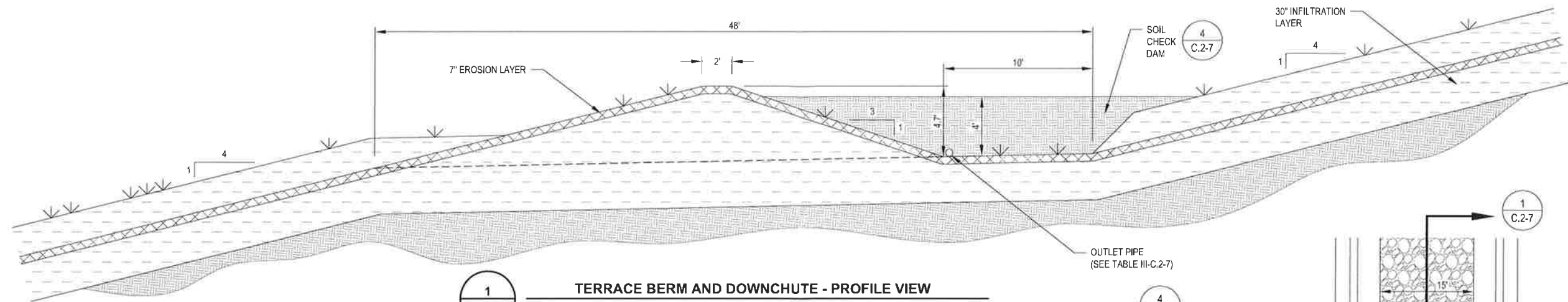
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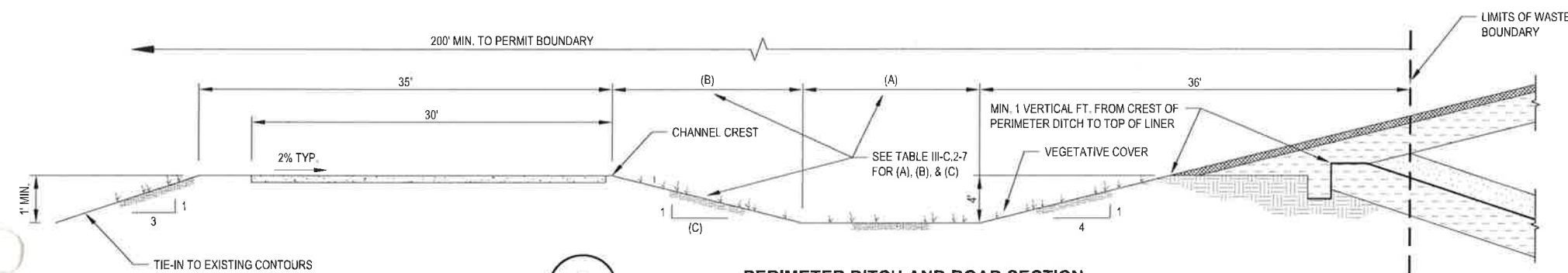
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**FACILITY SURFACE WATER DRAINAGE REPORT
POST-DEVELOPMENT STORMWATER FEATURE OVERVIEW**

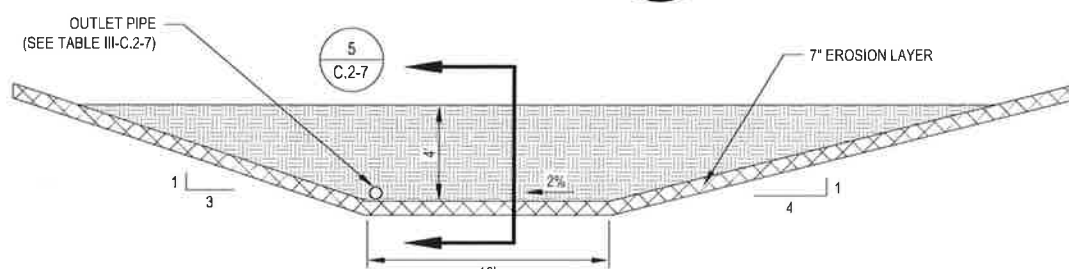
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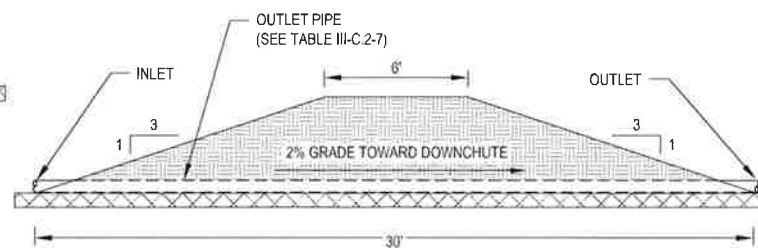
1
C.2-7
TERRACE BERM AND DOWNCHUTE - PROFILE VIEW
NOT TO SCALE



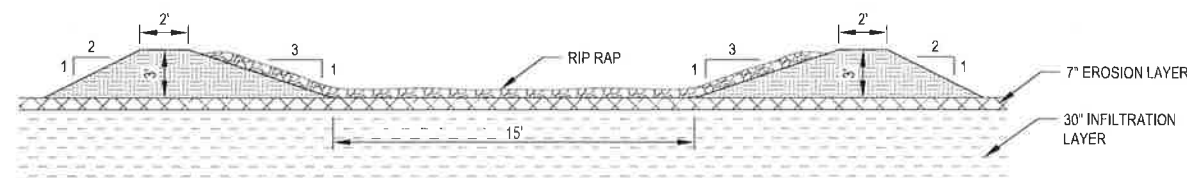
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C.2-7
PERIMETER DITCH AND ROAD SECTION
NOT TO SCALE



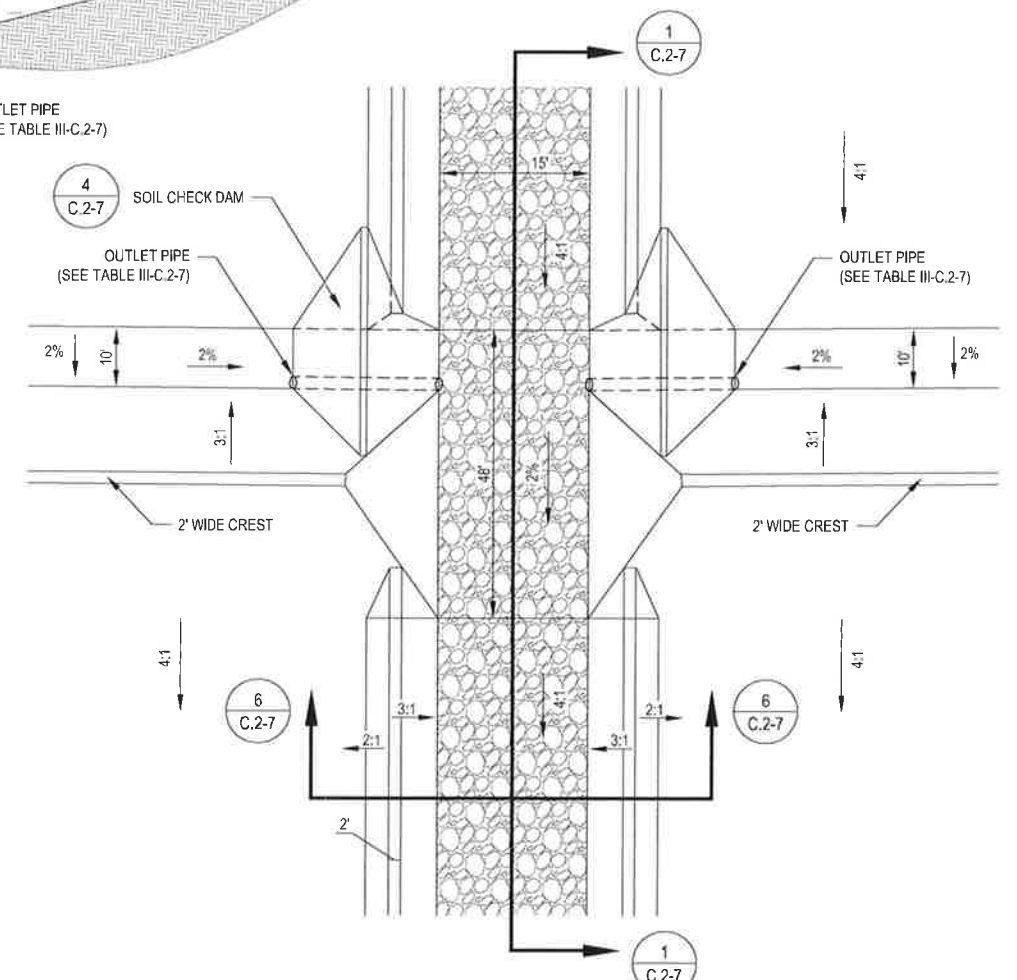
4
C.2-7
TYPICAL SOIL CHECK DAM PROFILE
NOT TO SCALE



5
C.2-7
TYPICAL SOIL CHECK DAM SECTION
NOT TO SCALE



6
C.2-7
TYPICAL DOWNCHUTE SECTION
NOT TO SCALE



3
C.2-7
TERRACE BERM AND DOWNCHUTE - PLAN VIEW
NOT TO SCALE

| TABLE III-C.2-7 | | | |
|-----------------|-------------|-----------------|-----------------|
| DETAIL CALLOUT | OBJECT | NORTH UNIT SIZE | SOUTH UNIT SIZE |
| 2 | (A) | 15' | 40' |
| 2 | (B) | 16' | 12' |
| 2 | (C) | 4' | 3' |
| 3 | OUTLET PIPE | 14" | 7" |
| 4 | OUTLET PIPE | 14" | 7" |
| 5 | OUTLET PIPE | 14" | 7" |

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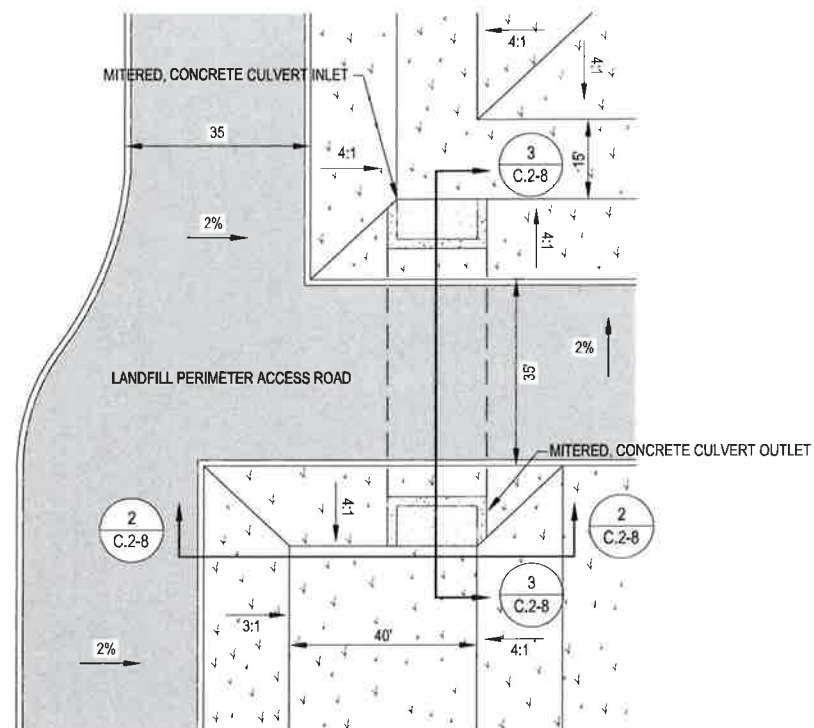
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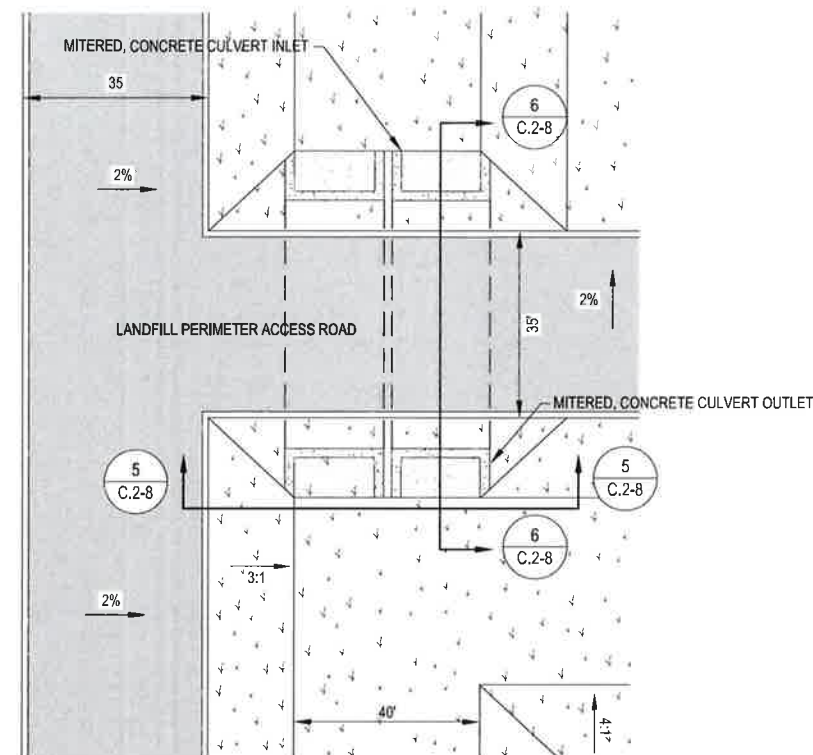
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**FACILITY SURFACE WATER DRAINAGE REPORT
TERRACE BERM, DOWNCHUTE, AND PERIMETER CHANNEL DETAILS**

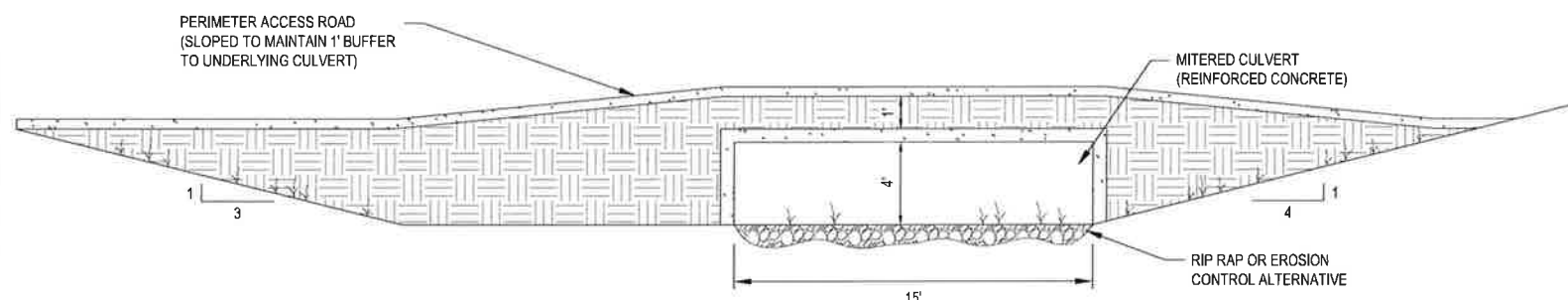
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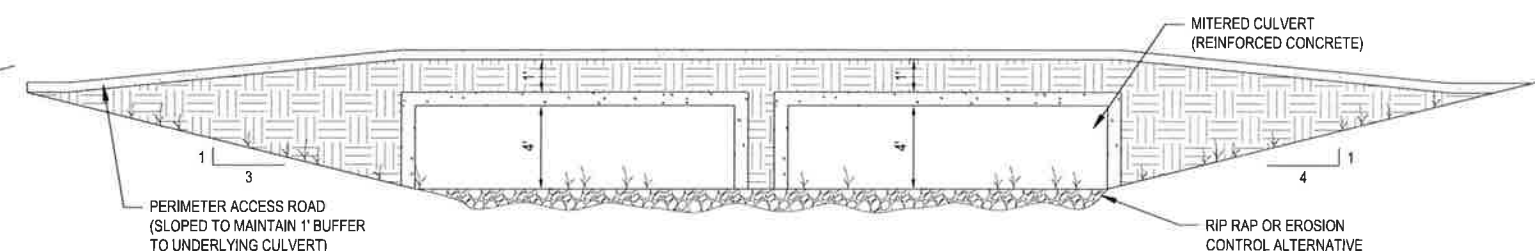
1 NORTH PERIMETER DITCH CULVERT PASSAGE - PLAN VIEW
(NUEOC & NUWOC)
NOT TO SCALE



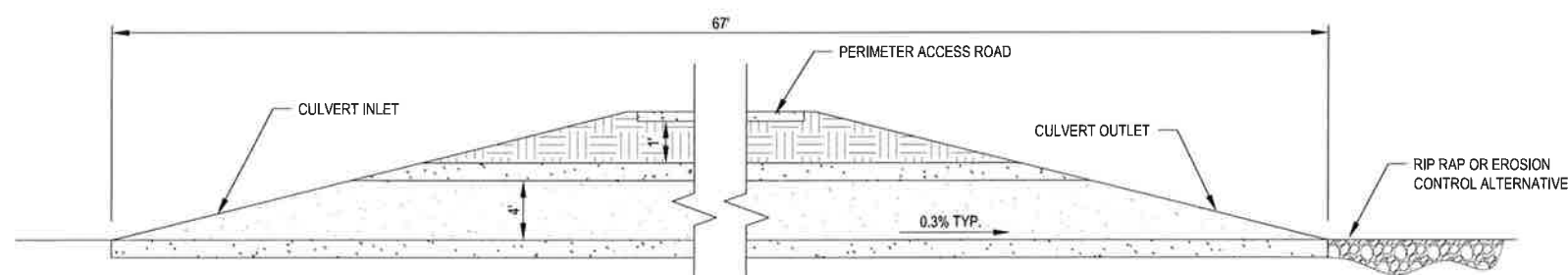
4 SOUTH PERIMETER DITCH CULVERT PASSAGES - PLAN VIEW
(SUEIC & SUWIC)
NOT TO SCALE



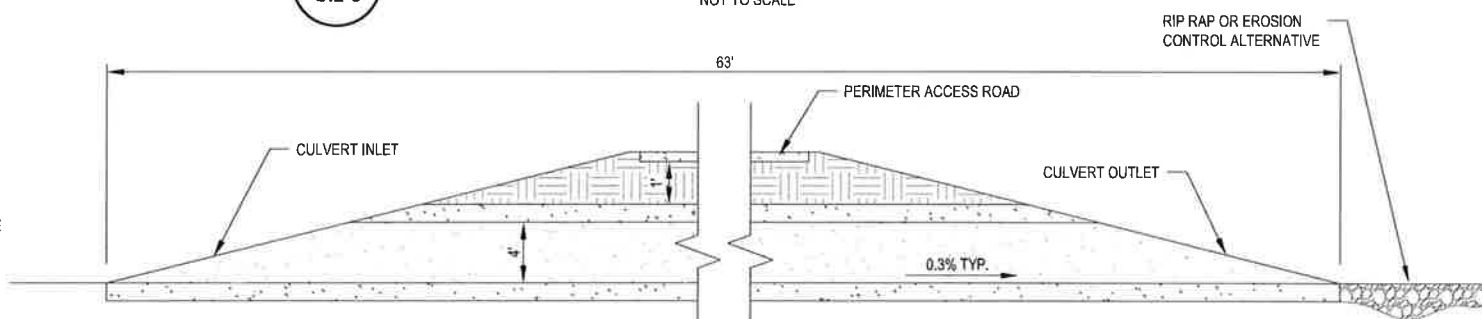
2 NORTH PERIMETER DITCH CULVERT PASSAGE - PROFILE VIEW
NOT TO SCALE



5 SOUTH PERIMETER DITCH CULVERT PASSAGES - PROFILE VIEW
NOT TO SCALE



3 NORTH PERIMETER DITCH CULVERT PASSAGE - SECTION VIEW
NOT TO SCALE



6 SOUTH PERIMETER DITCH CULVERT PASSAGES - SECTION VIEW
NOT TO SCALE

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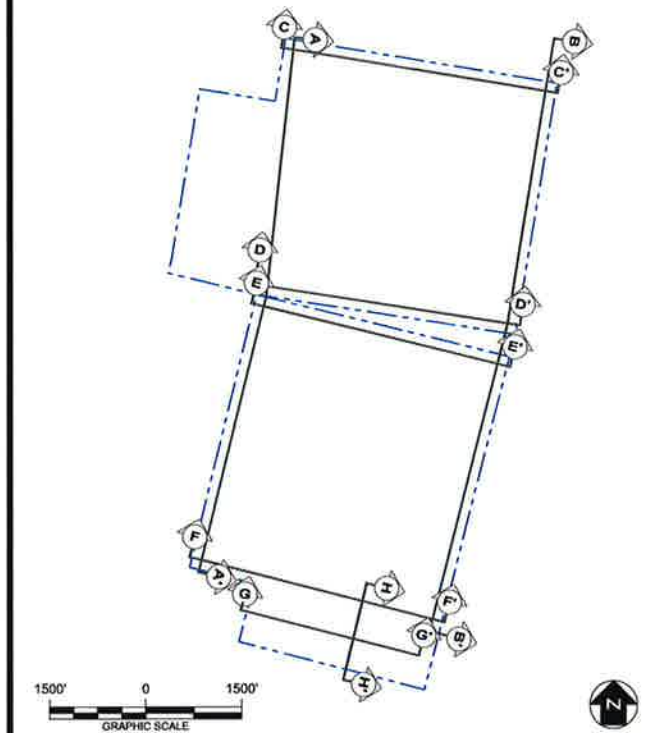
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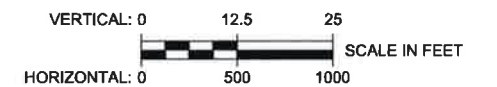
**FACILITY SURFACE WATER DRAINAGE REPORT
PERIMETER CHANNEL AND CULVERT DETAILS**

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| CHECKED BY: | RDS | | 8 OF 13 SHEETS |
| APPROVED BY: | MWO | | |

KEYMAP



APPROXIMATE FACILITY BOUNDARY



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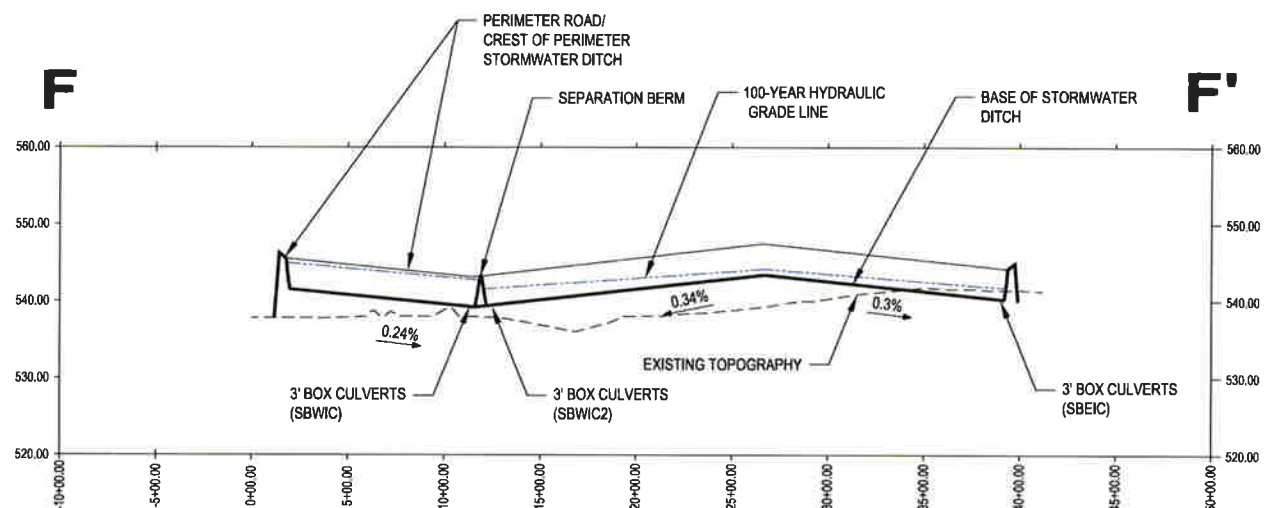
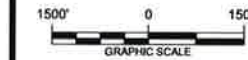
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| DESIGNED BY: — | DRAWING NO. III C.2-9 |
| DRAWN BY: MTE | |
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| 9 OF 13 SHEETS | |

III
C.2-9

OF 13 SHEETS

KEYMAP

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WEBB COUNTY, TEXAS
MSW 2374**

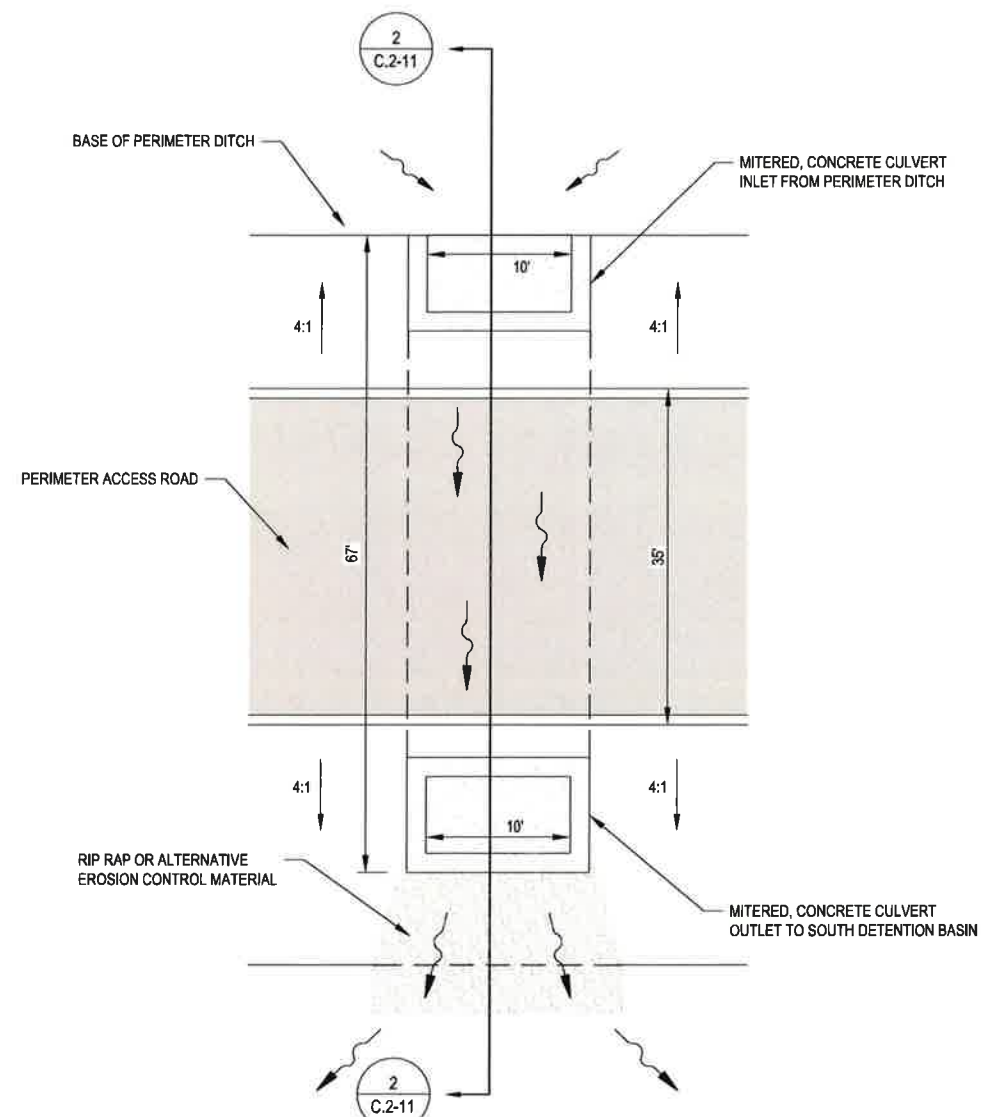
FACILITY SURFACE WATER DRAINAGE REPORT

PERIMETER DITCH PROFILES

| | | | |
|--------------|--------|--|-----------------|
| PROJ. NO.: | 148B66 | DATE: | APRIL 2015 |
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| APPROVED BY: | MWO | | |

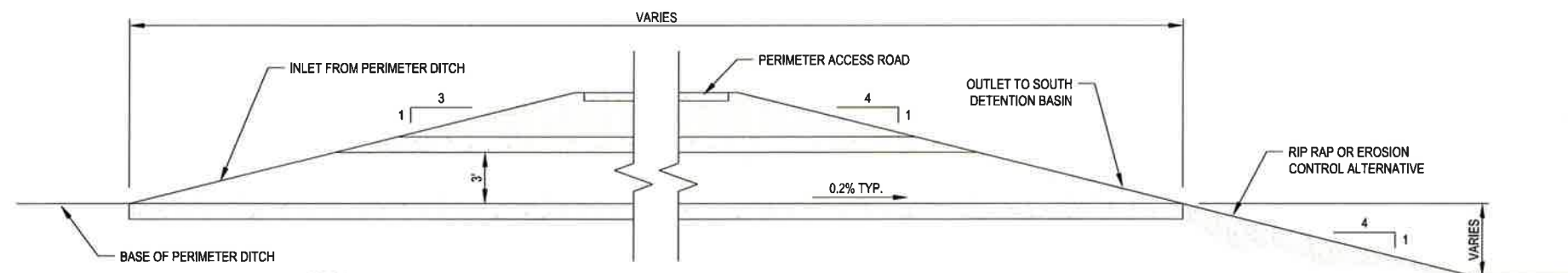
III
C.2-10

OF 13 SHEETS



DETENTION BASIN CULVERT PASSAGE - PLAN VIEW

(SBWIC, SBWIC2, SBEIC)
NOT TO SCALE

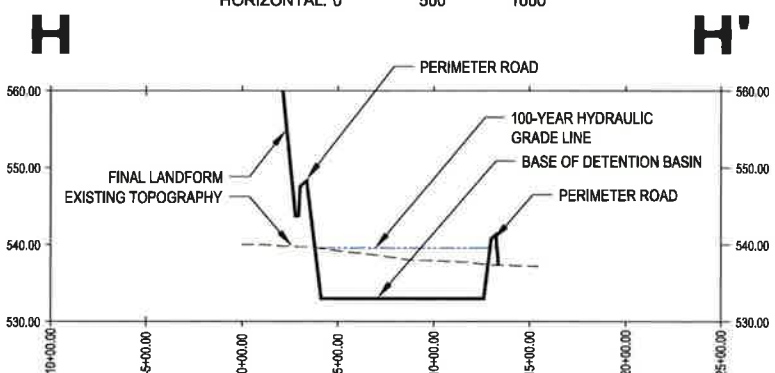
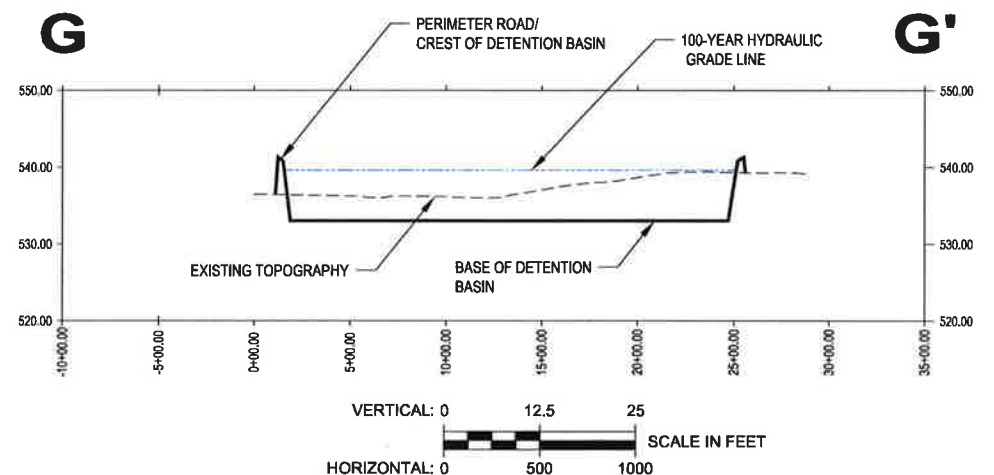
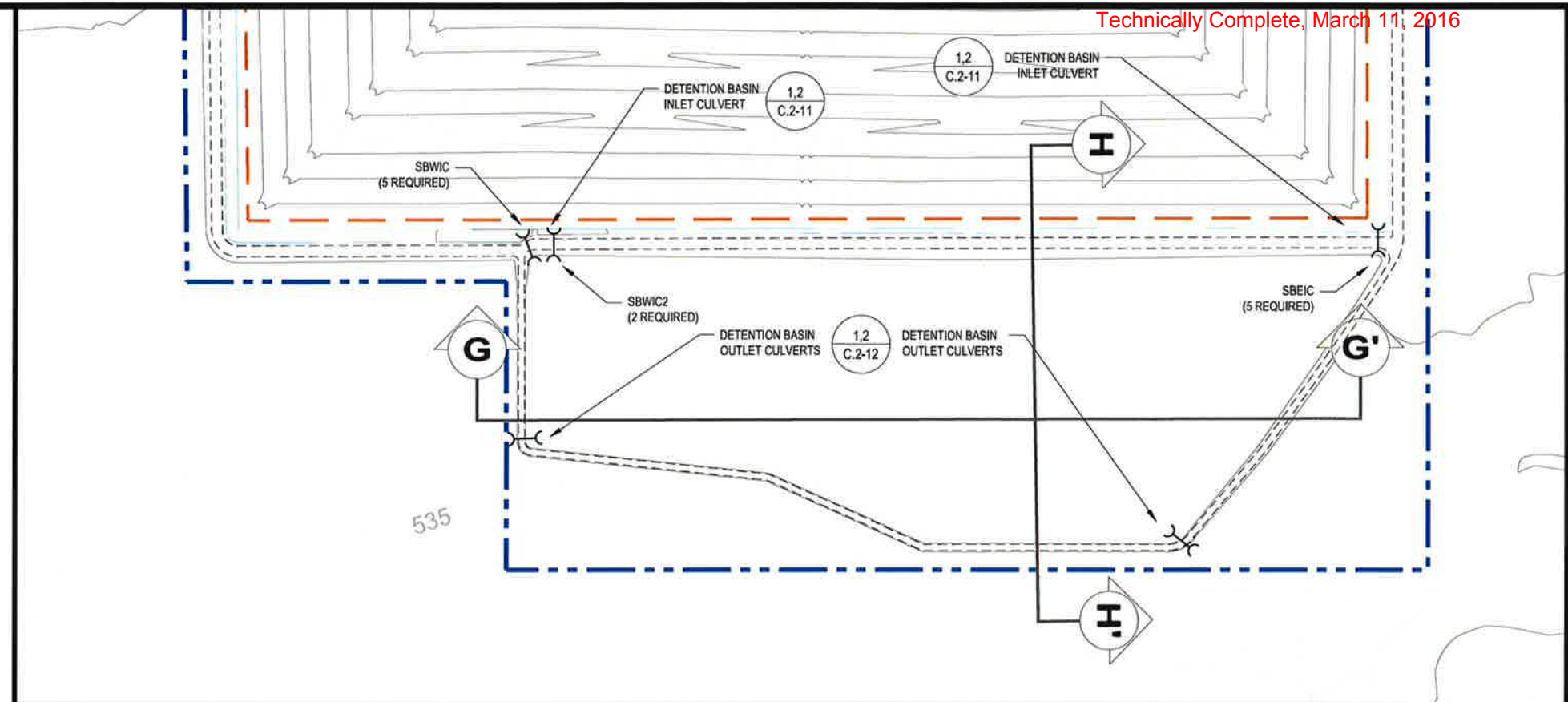


DETENTION BASIN INLET CULVERT PASSAGE - SECTION VIEW

NOT TO SCALE

LEGEND

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- PERIMETER ROAD
- PERIMETER STORMWATER DITCH
- MITERED CONCRETE CULVERT



| REV. NO. | DATE | DESCRIPTION |
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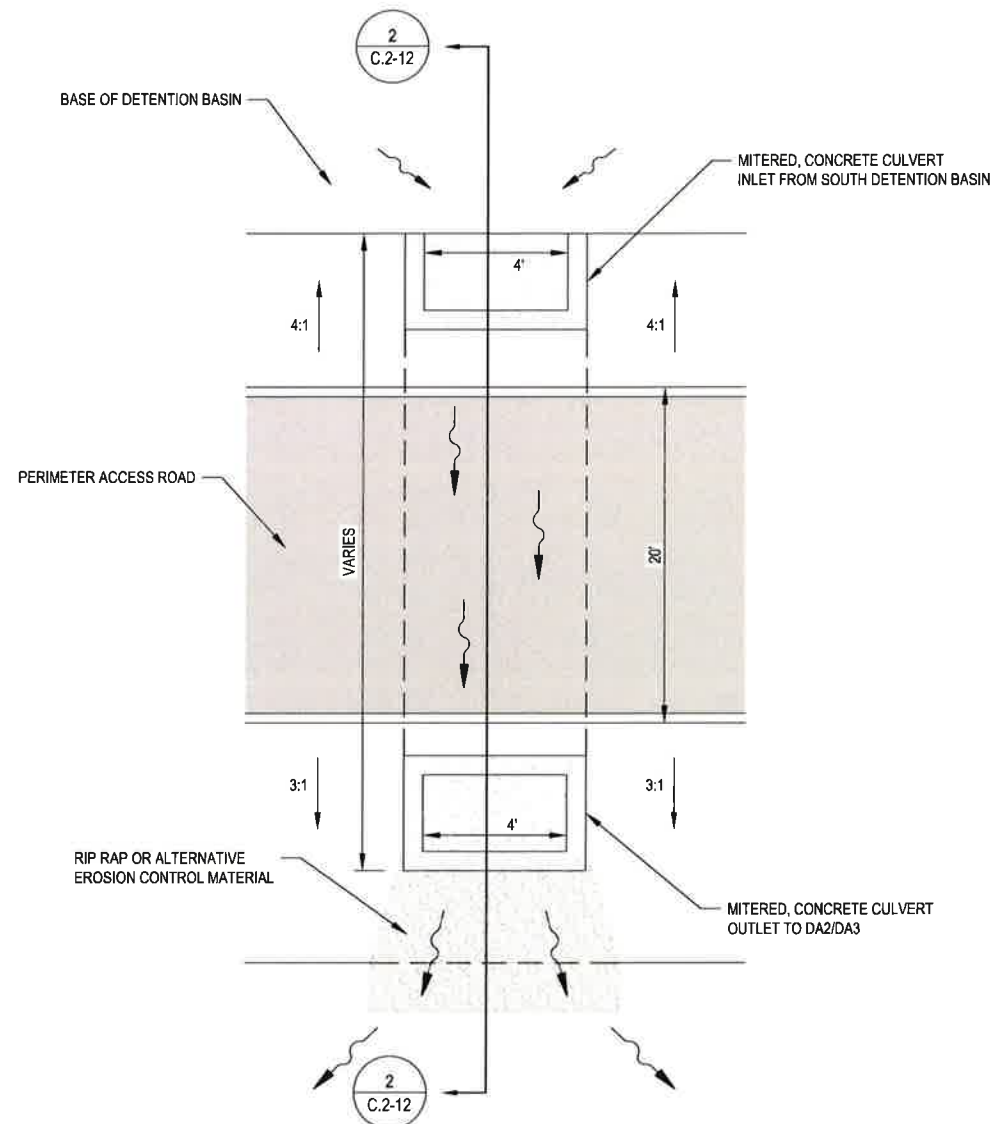


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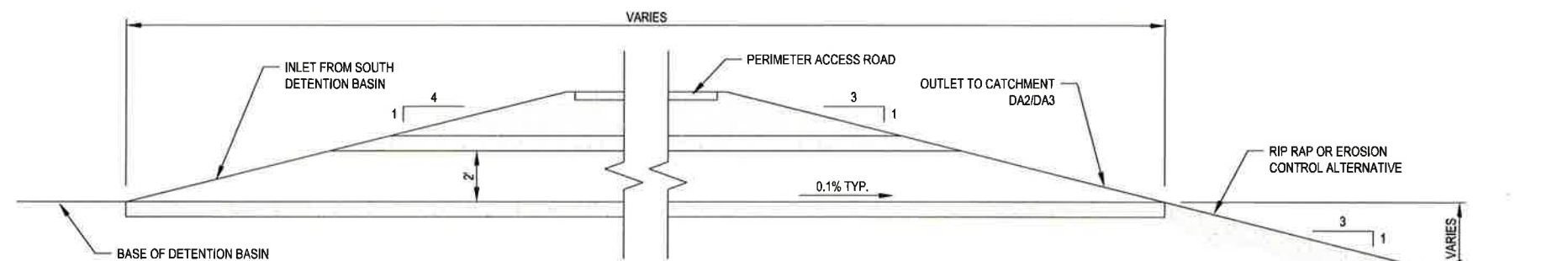
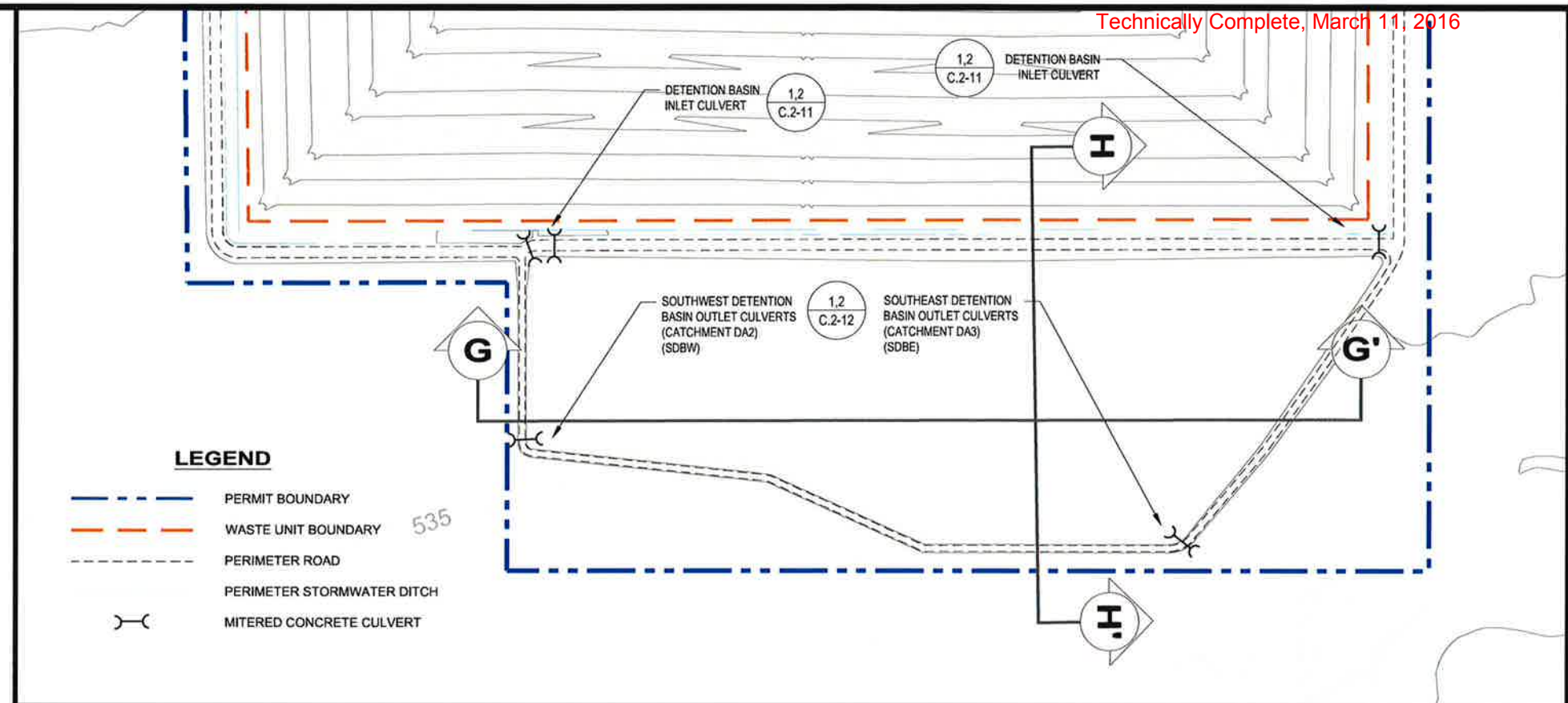
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WEBB COUNTY, TEXAS
MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT
DETENTION BASIN PLAN, PROFILE, AND DETAILS**

| | |
|-------------------|------------------------|
| PROJ. NO.: 148866 | DATE: APRIL 2015 |
| DESIGNED BY: MTE | DRAWING NO. III C.2-11 |
| DRAWN BY: MTE | 11 OF 13 SHEETS |
| CHECKED BY: RDS | |
| APPROVED BY: MWO | |



1
C.2-12
DETENTION BASIN OUTLET CULVERT PASSAGE - PLAN VIEW
(SDBE & SDBW)
NOT TO SCALE



2
C.2-12
DETENTION BASIN OUTLET CULVERT PASSAGE - SECTION VIEW
NOT TO SCALE

- LEGEND**
- PERMIT BOUNDARY
 - WASTE UNIT BOUNDARY
 - PERIMETER ROAD
 - PERIMETER STORMWATER DITCH
 - MITERED CONCRETE CULVERT



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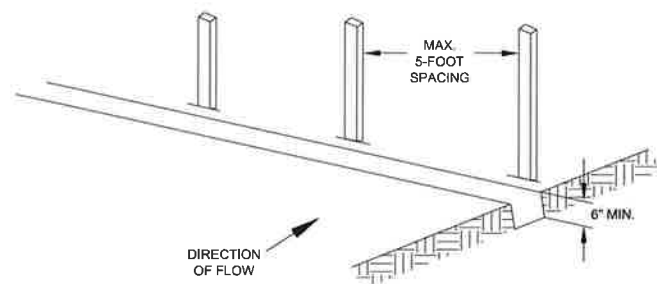
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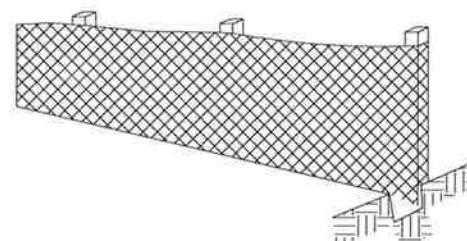
FACILITY SURFACE WATER DRAINAGE REPORT
DETENTION BASIN PLAN, PROFILE, AND DETAILS

| | | | |
|--------------|--------|-------------|-----------------|
| PROJ. NO.: | 148B66 | DATE: | APRIL 2015 |
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| DRAWN BY: | MTE | | C.2-12 |
| CHECKED BY: | RDS | | 12 OF 13 SHEETS |
| APPROVED BY: | MWO | | |

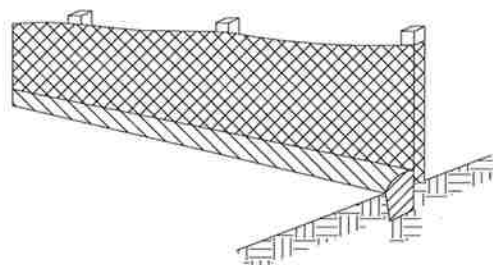
STEP 1
SET POSTS AND EXCAVATE OR SLIT-TRENCH A SIX-INCH
DEEP TRENCH UPSLOPE ALONG THE LINE OF THE POST.



STEP 2
ATTACH THE GEOTEXTILE FILTER FABRIC TO EACH POST WITH A
MINIMUM OF 3 (THREE) FASTENERS PER POST AND EXTEND TO
THE BOTTOM OF THE TRENCH. ACCEPTABLE FASTENERS
INCLUDE STAPLES, ZIP TIES, OR WIRE TIES.



STEP 3
BACKFILL AND COMPACT THE EXCAVATED SPOIL MATERIALS.



| GEOTEXTILE REQUIREMENT | TEST METHOD | MARV |
|--|-------------|------------------------|
| GRAB STRENGTH -MACHINE DIRECTION | ASTM D 4632 | 500 N 450 N |
| PERMITTIVITY | ASTM D 4491 | 0.05 SEC ⁻¹ |
| APPARENT OPENING SIZE* | ASTM D 4751 | 0.60 mm |
| ULTRAVIOLET STABILITY (RETAINED STRENGTH) | ASTM D 4355 | 70% AFTER 500 HOURS |

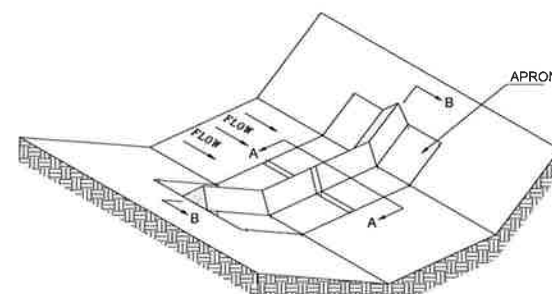
* VALUE FOR APPARENT OPENING SIZE REPRESENTS MAXIMUM AVERAGE ROLL VALUE.

NOTE:
1. EQUIVALENT DESIGN MAY BE USED AT THE DISCRETION OF THE FACILITY
OPERATOR OR CONTRACTOR WITH THE APPROVAL OF THE CQA OFFICER.

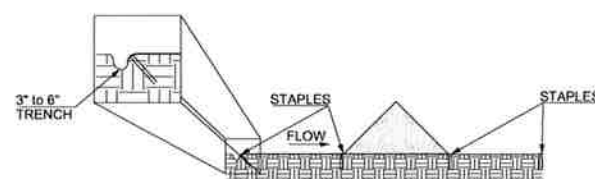
1
C.2-13

TYPICAL SILT FENCE DETAIL

NOT TO SCALE

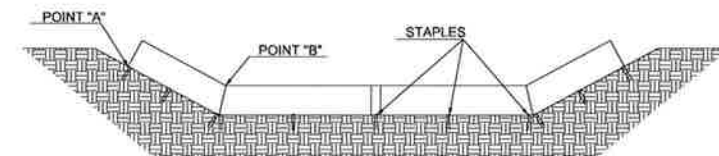


SILT DIKE UNIT
CUT SECTION



DETAIL A-A

STAPLES SHALL BE PLACED WHERE
THE UNITS OVERLAP



DIKE SECTION
DETAIL B-B

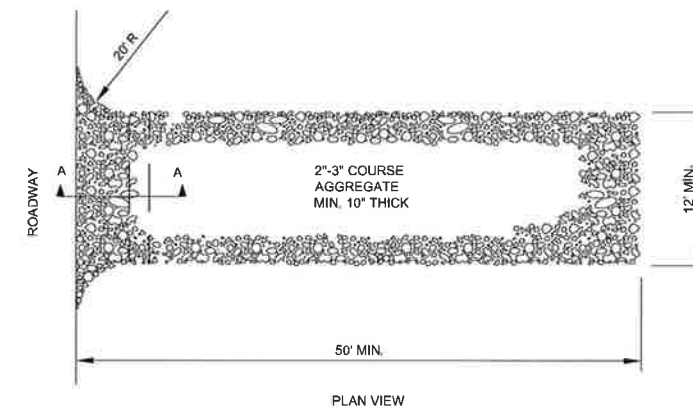
POINT "A" MUST BE HIGHER THAN POINT "B" TO
ENSURE THAT WATER FLOWS OVER THE DIKE AND
NOT AROUND THE ENDS.

- NOTES:
1. TRIANGULAR SILT DIKES OR A SIMILAR PRODUCT SHALL BE USED AS DITCH
CHECKS. EROSION BLANKETS OR SOD MAY ALSO BE USED IN
CONCENTRATED FLOW AREAS.
 2. SILT DIKE INSTALLATION AND MATERIAL STANDARDS WILL BE BASED ON
MANUFACTURER RECOMMENDATION.
 3. TRIANGULAR SILT DIKES ARE TO BE PLACED MINIMUM 300' ON CENTER IN
PERIMETER DITCHES AND SWALES UNTIL SEEDING IS ESTABLISHED.
 4. DETAIL ADAPTED FROM ACF ENVIRONMENTAL CAD DETAILS,
WWW.ACFENVIRONMENTAL, INC., ACCESSED OCT 22, 2009.
 5. EQUIVALENT DESIGN MAY BE USED AT THE DISCRETION OF THE FACILITY
OPERATOR OR CONTRACTOR WITH THE APPROVAL OF THE CQA OFFICER.

2
C.2-13

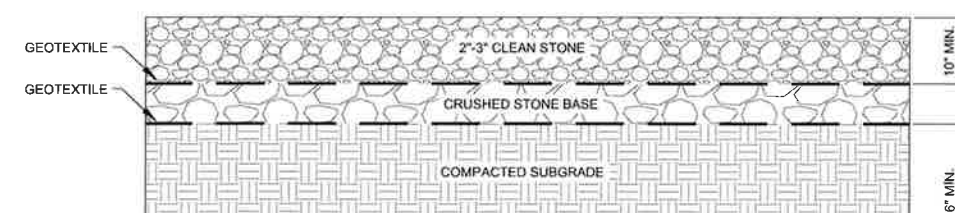
TYPICAL TRIANGULAR SILT DIKE

NOT TO SCALE



PLAN VIEW

- NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR
FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING,
REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC
RIGHT-OF-WAY.
 3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE
THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.



PROFILE VIEW

3
C.2-13

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

SEDIMENTATION AND EROSION CONTROL GENERAL NOTES

1. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL
STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS AND THE USE
OF TEMPORARY OR PERMANENT MEASURES.
2. SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE
COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
3. AREAS OR EMBANKMENTS HAVING SLOPES STEEPER THAN 3H:1V, SHALL BE STABILIZED WITH SOD, TURF
REINFORCED MAT, HYDROSEEDING, OR DISCED STRAW IN COMBINATION WITH SEEDING.
4. ALL CULVERTS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE
PROTECTED, BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
5. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES WILL BE MAINTAINED AND
REPAIRED AS NEEDED.
6. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS.
ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING
AGENCY.

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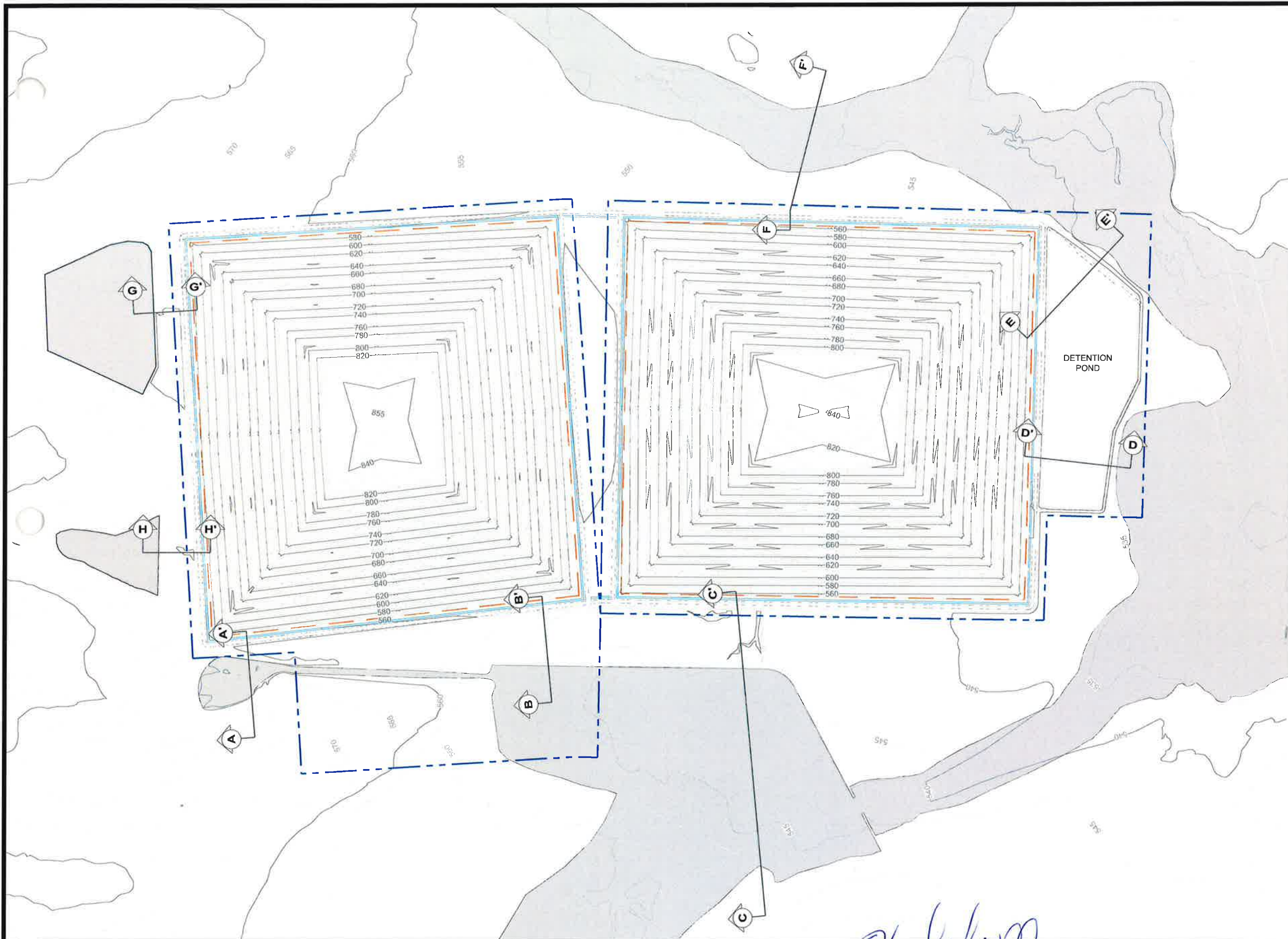
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MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT
EROSION CONTROL DETAILS**

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|--------------|--------|-------------|-----------------|
| PROJ. NO.: | 14B866 | DATE: | APRIL 2015 |
| DESIGNED BY: | — | DRAWING NO. | III |
| DRAWN BY: | BWM | | C.2-13 |
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LEGEND

- PERMIT BOUNDARY
- WASTE BOUNDARY
- PERIMETER DITCH
- PERIMETER ACCESS ROAD
- CLOMR 100-YEAR FLOODPLAIN

NOTES

1. CROSS SECTIONS SHOW THE LOCATION AND ELEVATION OF THE APPROVED 100-YEAR FLOODPLAIN IN RELATION TO THE CREST OF THE PERIMETER DITCH (ROAD) AND TOP OF LINER.

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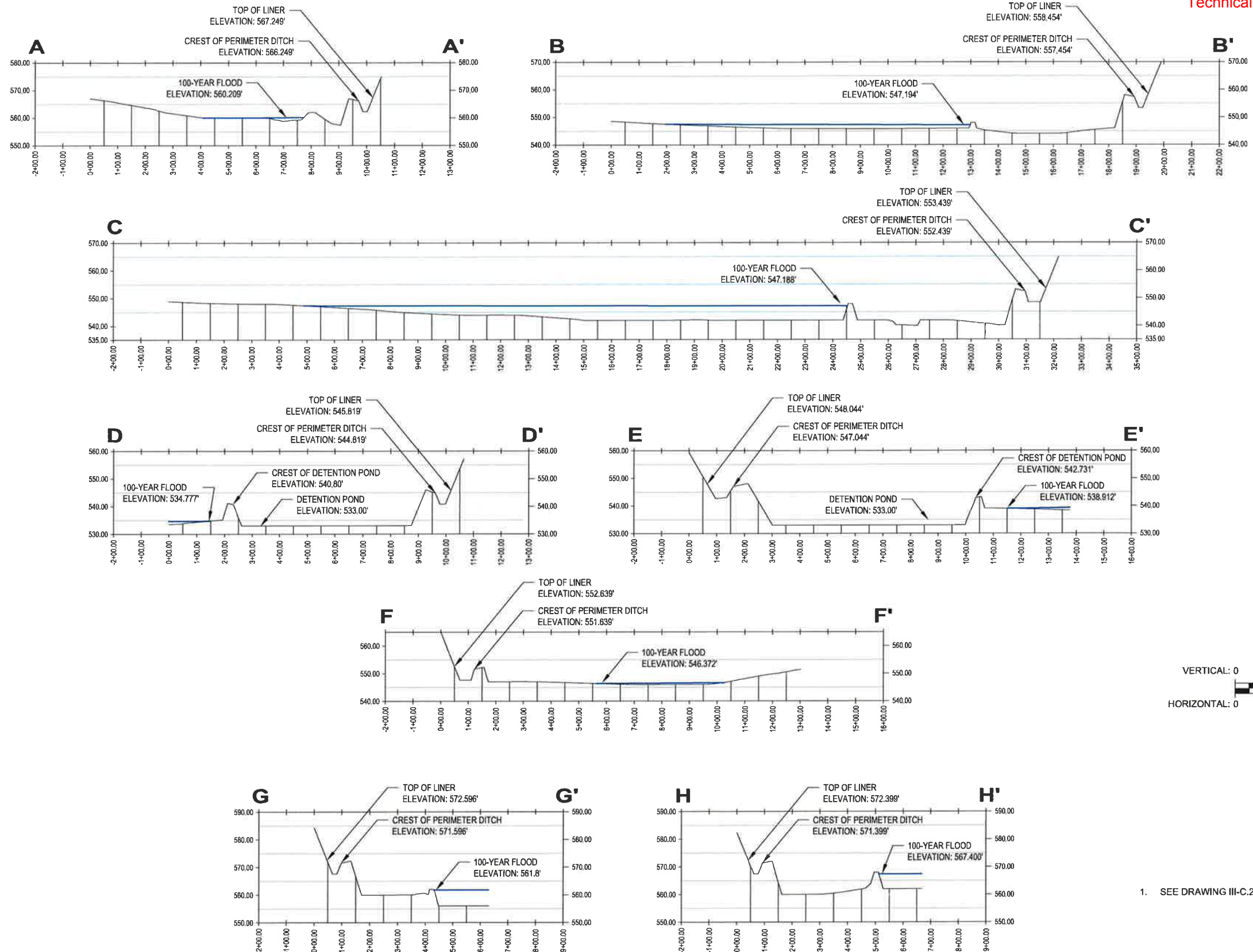
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**100-YEAR FLOODPLAIN CROSS SECTIONS
PLAN VIEW**

| | |
|-------------------|------------------|
| PROJ. NO.: 148B66 | DATE: APRIL 2015 |
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**100 YEAR FLOODPLAIN CROSS SECTIONS
PROFILE VIEW**

| | | | |
|--------------|--------|-------------|-----------------|
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| DRAWN BY: | MTE | | C.2-15 |
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