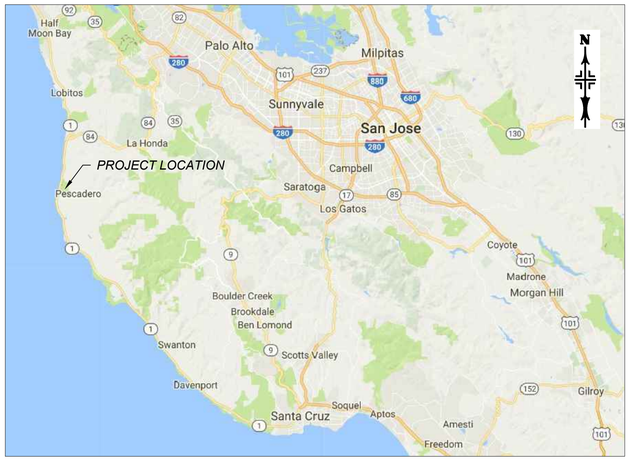
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

SAN MATEO COUNTY, CALIFORNIA

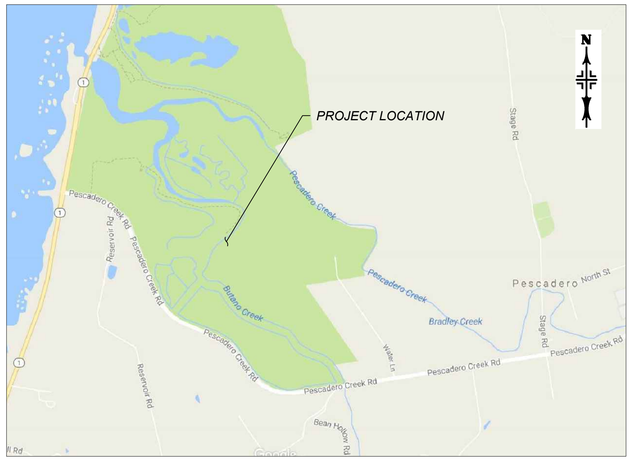
SAN MATEO RESOURCE CONSERVATION DISTRICT AND

CALIFORNIA DEPARTMENT OF PARKS AND RECREATION



PROJECT VICINITY MAP

(NOT TO SCALE)



PROJECT LOCATION MAP

(NOT TO SCALE)

CONTACTS

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CONTOURS AND ELEVATIONS SHOWN ON PLANS CONSIST OF NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) LIDAR SUPPLEMENTED WITH CBEC'S SITE TOPOGRAPHY COLLECTED IN NOVEMBER 2016 (BUTANO CREEK BATHYMETRY/TOPOGRAPHY) AND FEBRUARY AND APRIL 2017 (MARSH TOPOGRAPHY). CBEC SITE SURVEY OF BUTANO MARSH AND CREEK WAS TIED INTO NATIONAL GEODETIC SURVEY FIRST ORDER, CLASS 1, VERTICAL CONTROL POINT HT1506 LOCATED AT LAT:37°15'34.4", LONG:122°24'46.9" WITH A PUBLISHED ELEVATION OF 50.31 FT (NAVD88, GEOID 09). SURROUNDING TOPOGRAPHY IS FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION 2009-2011 LIDAR DATASET.

NOTE: CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE PERMITS.

SHEET LIST TABLE

Sheet Number	Sheet Title
C1	COVER SHEET
C2	EXISTING CONDITIONS
C3	ACCESS AND STAGING PLAN
C4	SHEET LAYOUT PLAN
C5	PLAN VIEW (1 OF 7)
C6	PLAN VIEW (2 OF 7)
C7	PLAN VIEW (3 OF 7)
C8	PLAN VIEW (4 OF 7)
C9	PLAN VIEW (5 OF 7)
C10	PLAN VIEW (6 OF 7)
C11	PLAN VIEW (7 OF 7)

SHEET LIST TABLE

Sheet Number	Sheet Title
C12	CHANNEL PROFILE (1 OF 2)
C13	CHANNEL PROFILE (2 OF 2)
C14	SECTIONS
C15	ALIGNMENT GEOMETRY TABLE
C16	MARSH CONTROL STRUCTURE DETAILS
C17	WATER QUALITY BERM ENHANCEMENT DETAILS
C18	ENGINEERED LOG JAM PLAN AND SECTION
C19	PESCADERO LAGOON WATER SURFACE ELEVATION CONTROL

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REVISION NOTES

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REVIEWED SD
APPROVED CH

PREPARED BY: cbec eco engineering

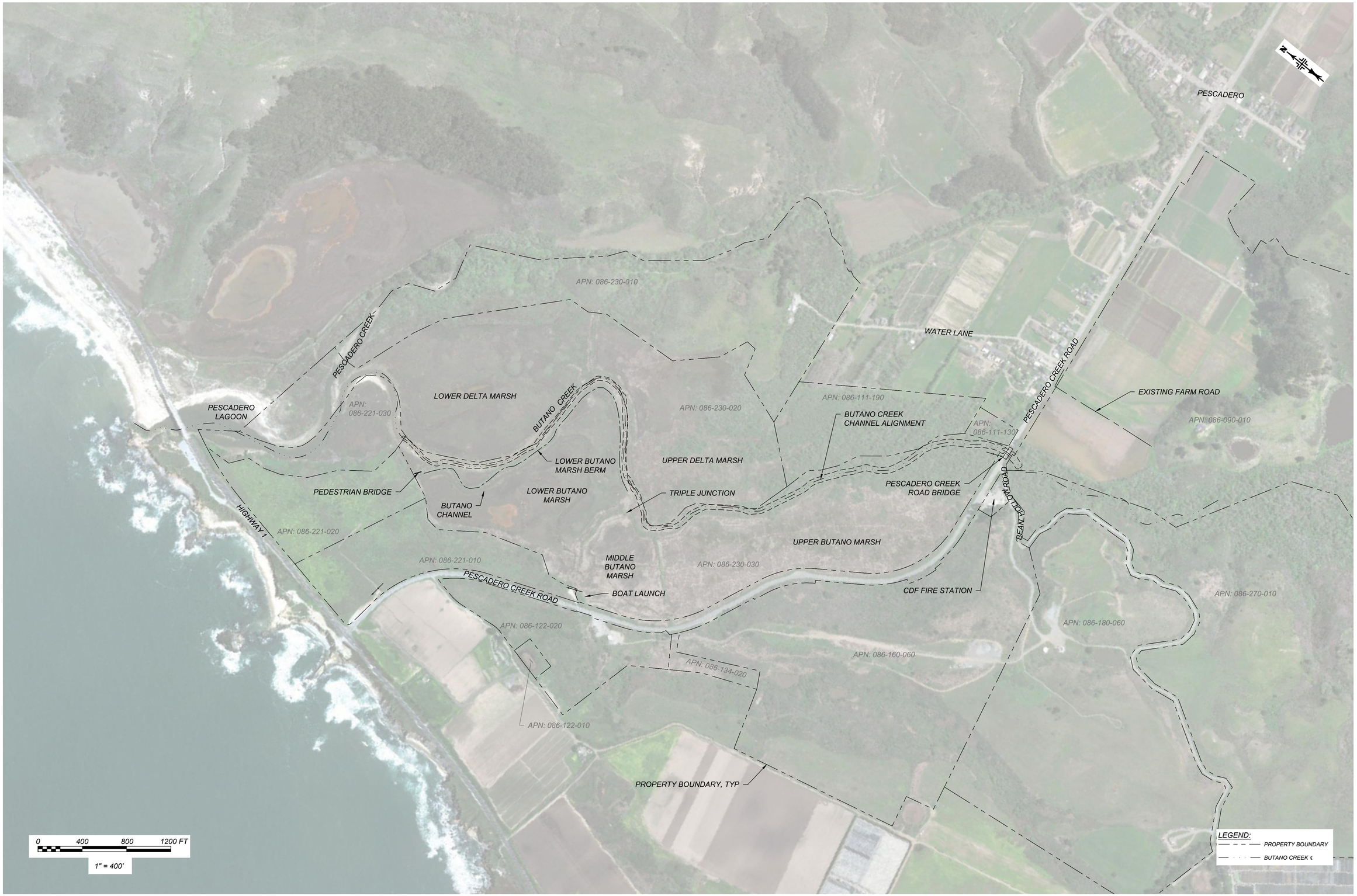
CLIENT: SAN MATEO RESOURCE CONSERVATION DISTRICT
80 STONE PINE ROAD #100
HALF MOON BAY, CA 94019
(650) 712-7765

PESCADERO CALIFORNIA
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT
COVER SHEET

JOB NUMBER 16-1027-4

DATE DEC 2019

SHEET C1
1 OF 19



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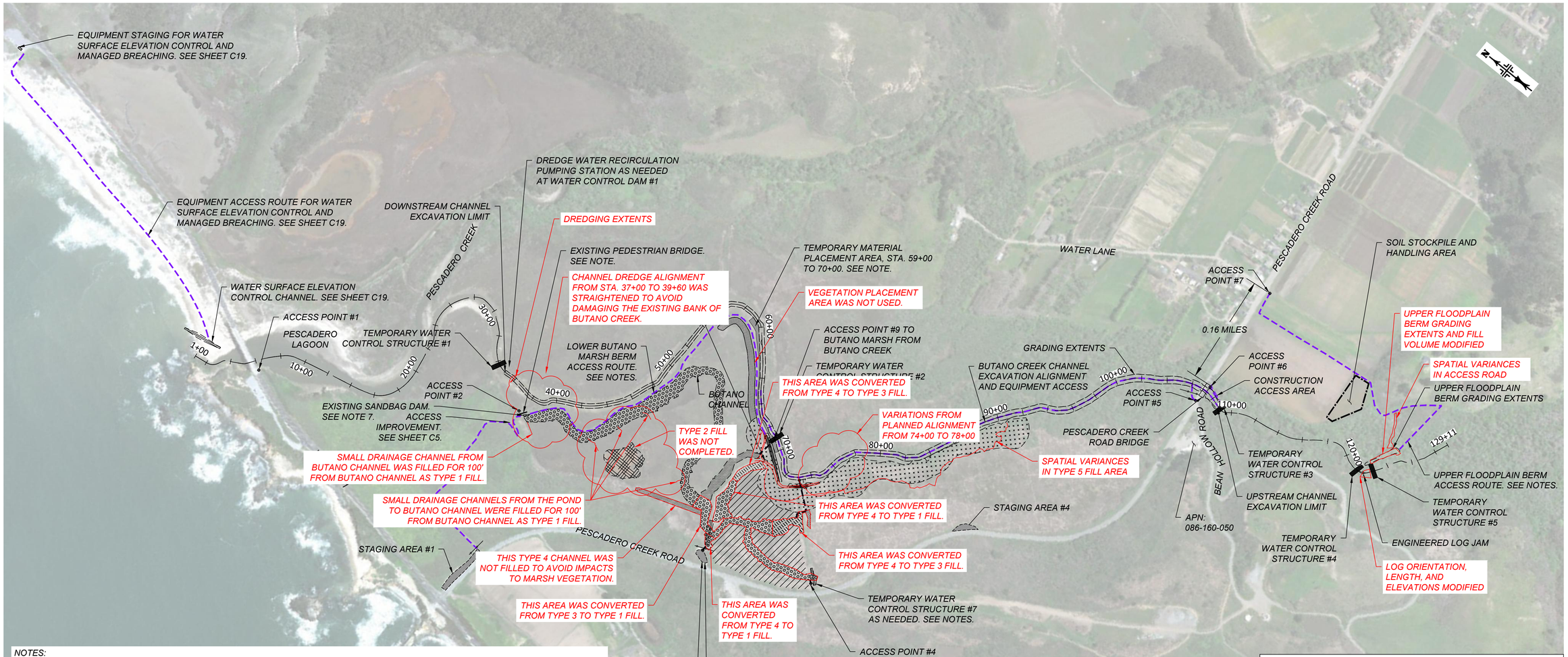
PESCADERO CALIFORNIA
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

EXISTING CONDITIONS

JOB NUMBER 16-1027-4

DATE DEC 2019

SHEET C2
2 OF 19



NOTES:

1. BUTANO CREEK CHANNEL ACCESS IS RESTRICTED TO THE CHANNEL EXCAVATION EXTENTS SHOWN ON THESE PLANS.
2. ALL TRAVEL OUTSIDE OF DISTURBANCE AREAS SHOWN IN BUTANO MARSH IS SUBJECT TO APPROVAL BY OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PREPARE A CONSTRUCTION SEQUENCING AND TRAVEL PLAN FOR APPROVAL BY OWNER'S REPRESENTATIVE BEFORE TRAVELING OUTSIDE OF DISTURBED AREAS SHOWN ON PLANS.
3. ACCESS POINT #2: MATERIAL MAY BE ADDED TO IMPROVE SLOPE, BUT NO EXCAVATION OR GRADING INTO THE EXISTING GROUND WILL BE ALLOWED. DISTURBED AREA SHALL BE RESTORED TO EXISTING GROUND ELEVATION AND CONDITION, EXISTING TRAIL ALIGNMENT SHALL BE RESTORED, AND AREA SHALL BE STABILIZED AND PLANTED FOR EROSION CONTROL IMMEDIATELY FOLLOWING CONSTRUCTION.
4. ACCESS POINTS #3 AND #4 REQUIRE TRAVEL ON SLOPES DOWN INTO THE MARSH. ACCESS ROUTES SHALL BE RETURNED TO ORIGINAL CONDITION, STABILIZED AND PLANTED FOR EROSION CONTROL AFTER CONSTRUCTION. ACCESS POINT #4 SHALL BE USED SPECIFICALLY FOR CONSTRUCTING WCS #7 IF NEEDED. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITIES TO IDENTIFY UTILITIES IN THIS AREA AND SHALL FORTIFY THE EDGE OF THE ROAD TO PREVENT DAMAGE TO PAVEMENT.
5. ACCESS POINT #6 WILL BE ALIGNED TO AVOID TREES. PROJECT BIOLOGIST APPROVAL OF ALIGNMENT IS REQUIRED PRIOR TO CLEARING ACCESS ROUTE.
6. LOWER BUTANO MARSH BERM IS NARROW AND WILL REQUIRE TEMPORARY ACCESS IMPROVEMENT FOR MOST CONSTRUCTION TRAFFIC. NO CUT OR REDUCTION IN GROUND ELEVATION BELOW EXISTING CONDITION IS ALLOWED ON LOWER BUTANO MARSH BERM, INCLUDING TRACK DAMAGE AND TIRE COMPACTION FROM TRAVEL ALONG THE BERM. THE BERM MAY BE MOWED TO PROVIDE ACCESS. TEMPORARY ACCESS IMPROVEMENTS SHALL BE RESTORED TO ORIGINAL CONDITION IMMEDIATELY FOLLOWING CONSTRUCTION. PROVIDE A BERM ACCESS PLAN INCLUDING EQUIPMENT THAT WILL BE USED, FREQUENCY OF TRAVEL, AND INTENDED BERM AUGMENTATION TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO ACCESSING BERM.
7. ACCESS TO THE LOWER BUTANO MARSH BERM MAY BE GAINED VIA IMPROVED ACCESS ACROSS THE EXISTING SANDBAG DAM, OR BY REMOVING AND REPLACING THE EXISTING PEDESTRIAN BRIDGE AND INSTALLING A TEMPORARY BRIDGE THAT WILL SUPPORT CONSTRUCTION EQUIPMENT. PROVIDE ACCESS IMPROVEMENT PLANS TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO ANY IMPROVEMENTS.
8. POTENTIAL STRUCTURES SHOWN ON PLANS INDICATE AREAS WHERE IT IS ANTICIPATED THAT THEY MAY BE USED FOR TEMPORARY WATER CONTROL. PUMP STATIONS FOR WATER CONTROL MAY BE TEMPORARILY INSTALLED AT VARIOUS LOCATIONS IN BUTANO MARSH. CONTRACTOR SHALL PROVIDE SECONDARY CONTAINMENT TO KEEP PUMP FUELS AND LUBRICANTS FROM ENTERING THE MARSH. COORDINATE LOCATION AND ACCESS TO THESE SITES WITH OWNER'S REPRESENTATIVE PRIOR TO MOBILIZATION.
9. UPPER FLOODPLAIN BERM ACCESS ROUTE. ALIGN PATH THROUGH LOW BRUSH, AVOIDING IMPACTS TO MATURE FOREST. PROVIDE ACCESS ROAD PLAN TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO CLEARING.
10. TEMPORARY MATERIAL PLACEMENT AREA. THIS AREA MAY BE USED FOR TEMPORARY STORAGE OF VEGETATION AND ROOT/SOIL MATERIAL CLEARED FROM BUTANO CREEK TO FACILITATE TRANSFER TO BUTANO MARSH. MATERIALS MAY NOT BE STORED FOR LONGER THAN 24 HOURS. COORDINATE WITH OWNER'S REPRESENTATIVE FOR APPROVAL OF CONSTRUCTION SEQUENCING PRIOR TO STORING ANY MATERIAL IN THIS AREA.
11. CONTRACTOR SHALL PLACE TEMPORARY CONSTRUCTION FENCING AT STAGING AREAS #1 AND #3 AND AT ACCESS POINT #5 PER SPECIFICATIONS.

GRADING SUMMARY

LOCATION	VOLUME (CY)	CUT/FILL
REACH 1	6,504	CUT
REACH 2	2,968	CUT
REACH 3	36,825	CUT
TYPE 1	4,645	FILL
TYPE 2	3,599	FILL
TYPE 3	4,331	FILL
TYPE 4	5,521	FILL
TYPE 5	25,142	FILL
TYPE 6	2,315	FILL

NOTE: EXCAVATION VOLUMES ARE APPROXIMATE AND DETERMINED BASED ON THE CBEC SITE SURVEY. EXCAVATION VOLUMES SHOWN INCLUDE SURFACE MATERIAL, WHICH SHALL BE SUITABLE AS FILL.

LEGEND:

- CONSTRUCTION STAGING AREA
- SOIL STOCKPILING AND HANDLING AREA
- ACCESS ROUTE
- UPPER FLOODPLAIN BERM ACCESS
- BUTANO CREEK CHANNEL AND DREDGING ALIGNMENT
- GRADING EXTENTS
- REACH 1 (STA. 35+00 TO STA. 60+00)
- REACH 2 (STA. 60+00 TO STA. 69+00)
- REACH 3 (STA. 69+00 TO STA. 108+84)
- TYPE 1 MARSH FILL
- TYPE 2 MARSH FILL
- TYPE 3 MARSH FILL
- TYPE 4 MARSH FILL
- TYPE 5 MARSH FILL
- TYPE 6 MARSH FILL
- TEMPORARY CONSTRUCTION FENCE

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CLIENT: SAN MATEO RESOURCE CONSERVATION DISTRICT
80 STONE PINE ROAD #100
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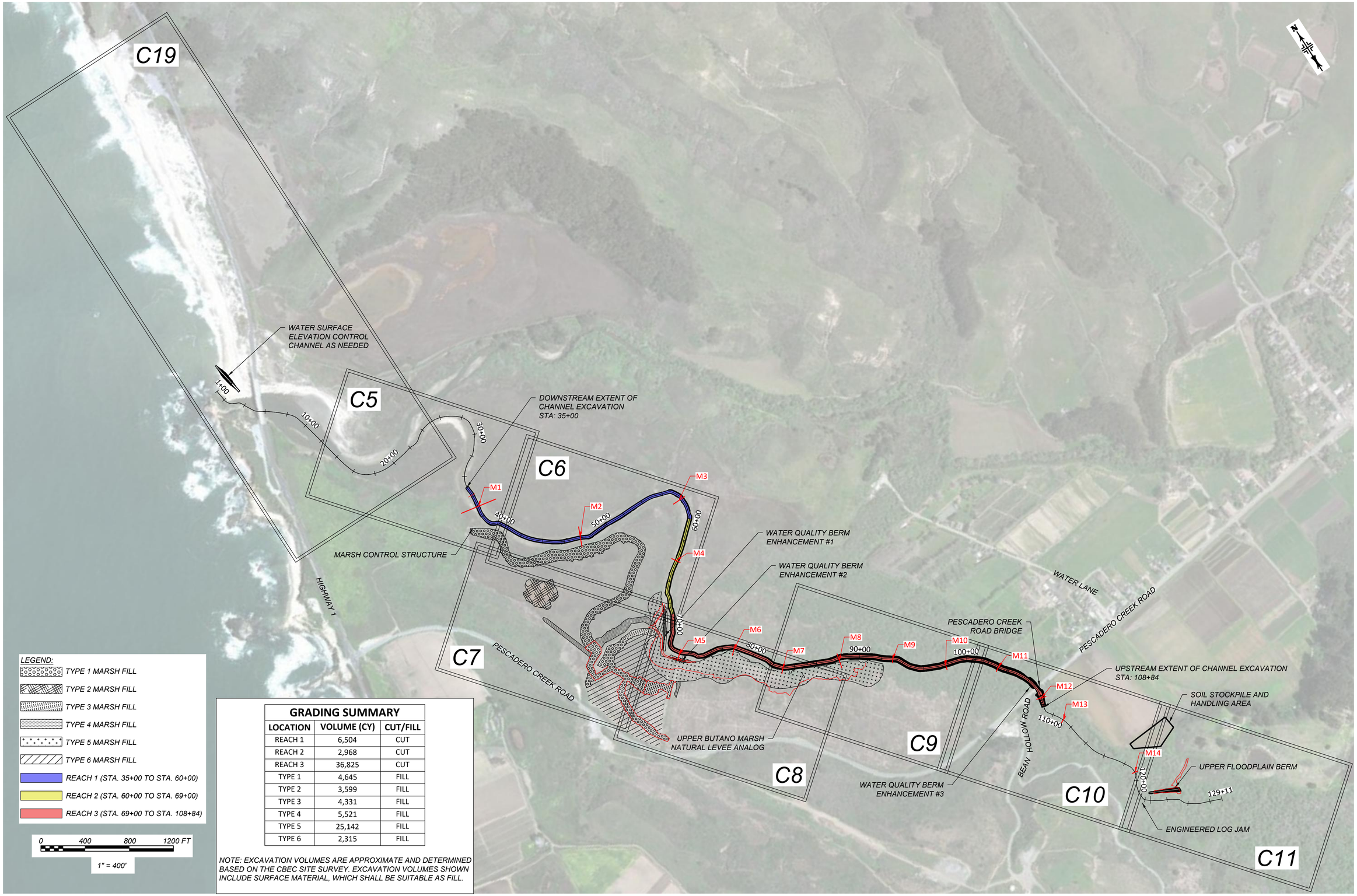
CALIFORNIA
PESCADERO BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

ACCESS AND STAGING PLAN

JOB NUMBER 16-1027-4
DATE FEB 2020
SHEET C3
3 OF 19



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NOTE: EXCAVATION VOLUMES ARE APPROXIMATE AND DETERMINED BASED ON THE CBEC SITE SURVEY. EXCAVATION VOLUMES SHOWN INCLUDE SURFACE MATERIAL, WHICH SHALL BE SUITABLE AS FILL.

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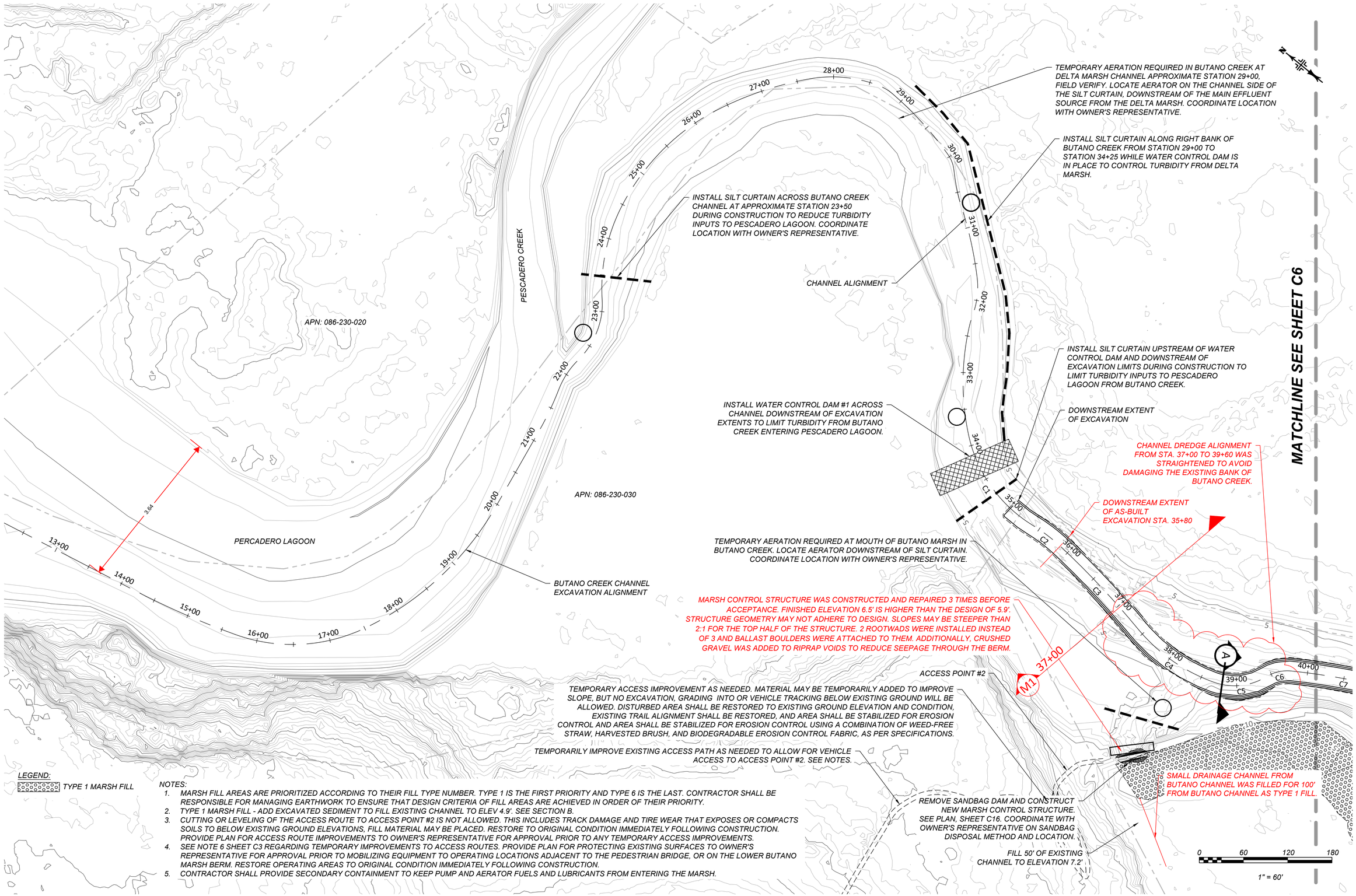
CALIFORNIA

SHEET LAYOUT PLAN

JOB NUMBER 16-1027-4

DATE DEC 2019

SHEET C4
4 OF 19



LEGEND:

TYPE 1 MARSH FILL

NOTES:

1. MARSH FILL AREAS ARE PRIORITIZED ACCORDING TO THEIR FILL TYPE NUMBER. TYPE 1 IS THE FIRST PRIORITY AND TYPE 6 IS THE LAST. CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING EARTHWORK TO ENSURE THAT DESIGN CRITERIA OF FILL AREAS ARE ACHIEVED IN ORDER OF THEIR PRIORITY.
2. TYPE 1 MARSH FILL - ADD EXCAVATED SEDIMENT TO FILL EXISTING CHANNEL TO ELEV 4.9'. SEE SECTION B.
3. CUTTING OR LEVELING OF THE ACCESS ROUTE TO ACCESS POINT #2 IS NOT ALLOWED. THIS INCLUDES TRACK DAMAGE AND TIRE WEAR THAT EXPOSES OR COMPACTS SOILS TO BELOW EXISTING GROUND ELEVATIONS, FILL MATERIAL MAY BE PLACED. RESTORE TO ORIGINAL CONDITION IMMEDIATELY FOLLOWING CONSTRUCTION. PROVIDE PLAN FOR ACCESS ROUTE IMPROVEMENTS TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO ANY TEMPORARY ACCESS IMPROVEMENTS.
4. SEE NOTE 6 SHEET C3 REGARDING TEMPORARY IMPROVEMENTS TO ACCESS ROUTES. PROVIDE PLAN FOR PROTECTING EXISTING SURFACES TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO MOBILIZING EQUIPMENT TO OPERATING LOCATIONS ADJACENT TO THE PEDESTRIAN BRIDGE, OR ON THE LOWER BUTANO MARSH BERM. RESTORE OPERATING AREAS TO ORIGINAL CONDITION IMMEDIATELY FOLLOWING CONSTRUCTION.
5. CONTRACTOR SHALL PROVIDE SECONDARY CONTAINMENT TO KEEP PUMP AND AERATOR FUELS AND LUBRICANTS FROM ENTERING THE MARSH.

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CALIFORNIA
PESCADERO
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

PLAN VIEW (1 OF 7)

JOB NUMBER 16-1027-4

DATE FEB 2020

SHEET C5
5 OF 19

LEGEND:

- TYPE 1 MARSH FILL
- TYPE 2 MARSH FILL
- TYPE 5 MARSH FILL

NOTES:

1. MARSH FILL AREAS ARE PRIORITIZED ACCORDING TO THEIR FILL TYPE NUMBER. TYPE 1 IS THE FIRST PRIORITY AND TYPE 6 IS THE LAST. CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING EARTHWORK TO ENSURE THAT DESIGN CRITERIA OF FILL AREAS ARE ACHIEVED IN ORDER OF PRIORITY.
2. ANTICIPATED LOCATION OF WATER CONTROL DAM IS BETWEEN STATIONS 69+00 AND 75+00. CONDITIONS AT TIME OF CONSTRUCTION WILL GOVERN LOCATION OF DAM. FIELD VERIFY CONDITIONS AND GET APPROVAL OF OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. TEMPORARY MATERIAL PLACEMENT AREA. THIS AREA MAY BE USED FOR TEMPORARY STORAGE OF VEGETATION AND ROOT/SOIL MATERIAL CLEARED FROM BUTANO CREEK TO FACILITATE TRANSFER TO BUTANO MARSH. MATERIALS MAY NOT BE STORED FOR LONGER THAN 24 HOURS. COORDINATE WITH OWNER'S REPRESENTATIVE FOR APPROVAL OF CONSTRUCTION SEQUENCING PRIOR TO STORING ANY MATERIAL IN THIS AREA.
4. SEED COMPLETED NATURAL LEVEE ANALOG SURFACE WITH STERILE BARLEY OR APPROVED EQUIVALENT FOR RAPID EROSION CONTROL, AS PER SPECIFICATIONS.
5. TYPE 1 MARSH FILL - ADD EXCAVATED SEDIMENT TO FILL EXISTING CHANNEL TO ELEV 4.9'. SEE SECTION B.
6. TYPE 5 MARSH FILL - ADD EXCAVATED SEDIMENT TO ENHANCE NATURAL LEVEE ANALOG ALONG BUTANO CREEK ACCORDING TO ELEVATIONS AND DIMENSIONS SHOWN. SEE SECTION E.

MATCHLINE SEE SHEET C5

APN: 086-230-020

APN: 086-230-030

BUTANO CREEK CHANNEL EXCAVATION ALIGNMENT

EXCAVATION EXTENTS

SMALL DRAINAGE CHANNELS FROM THE POND TO BUTANO CHANNEL WERE FILLED FOR 100' FROM BUTANO CHANNEL AS TYPE 1 FILL.

TEMPORARY MATERIAL PLACEMENT AREA AS NEEDED. SEE NOTES.

DEPOSIT VEGETATION AND ROOTED SOILS CLEARED FROM BUTANO CREEK CHANNEL IN BUTANO MARSH ALONG THE TOE OF THE EXISTING BERM. SPREAD VEGETATION EVENLY TO AVOID TALL PILES. COORDINATE WITH OWNER'S REPRESENTATIVE TO ADVISE ON FORM OF DEPOSITED MATERIAL.

MATERIAL WAS NOT PLACED IN THIS AREA

50' MAX FROM BERM TOE

WATER QUALITY BERM ENHANCEMENT TOP OF BANK

APPROXIMATE LOCATION OF ANTICIPATED WATER CONTROL DAM #2. SEE NOTE.

AS-BUILT EXTENT OF TYPE 5 FILL.

ACCESS POINT #9 ACCESS TO BUTANO MARSH FROM BUTANO CREEK.

M2 47+50

M3 58+00

M4 64+00

MATCHLINE SEE SHEET C7, C8

0 60 120 180 FT

1" = 60'

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PLAN VIEW (2 OF 7)

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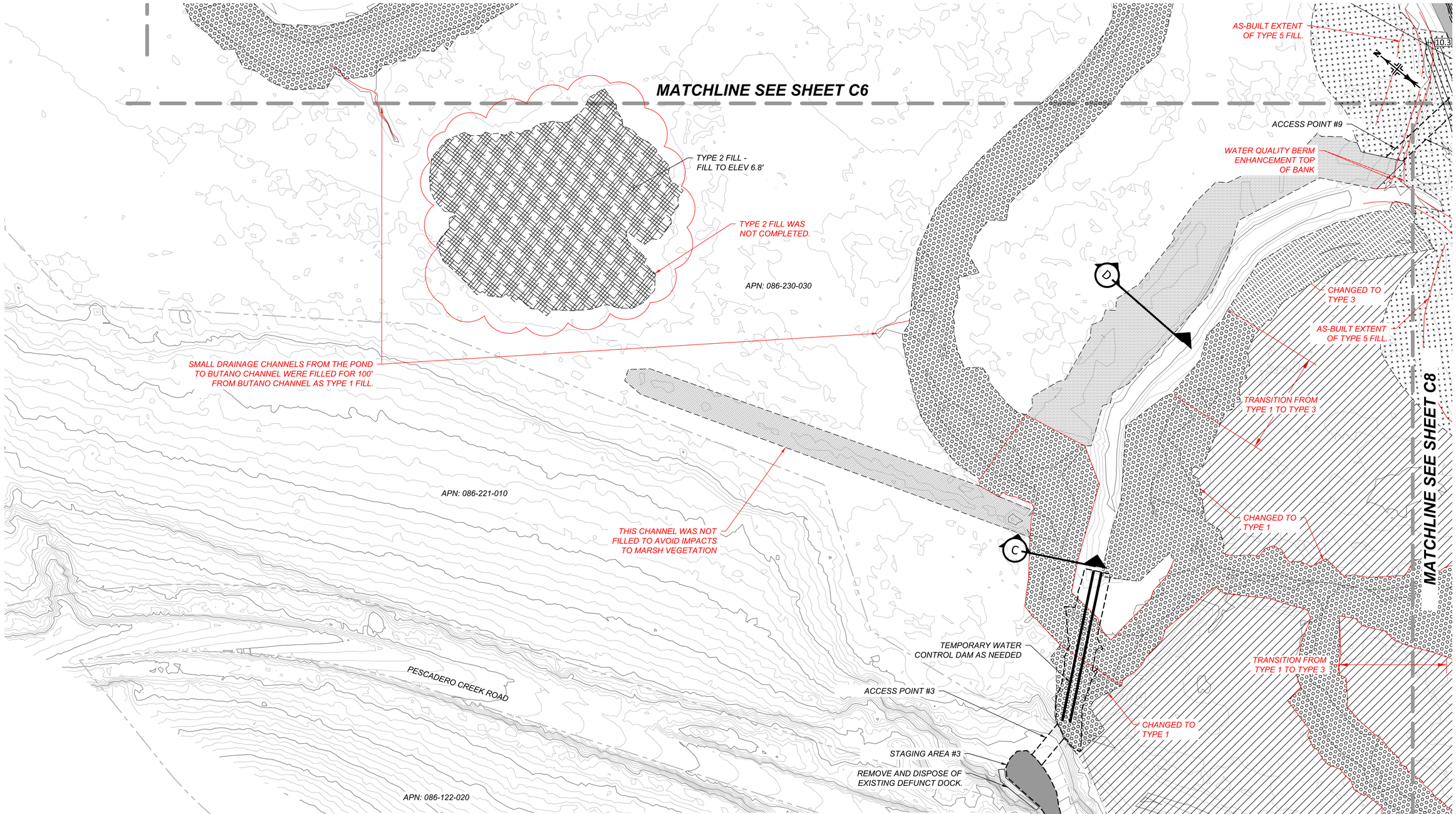
SHEET C6
6 OF 19



LEGEND:

- TYPE 1 MARSH FILL
- TYPE 2 MARSH FILL
- TYPE 3 MARSH FILL
- TYPE 4 MARSH FILL
- TYPE 5 MARSH FILL
- TYPE 6 MARSH FILL

0 60 120 180 FT

1" = 60'

NOTES:

1. MARSH FILL AREAS ARE PRIORITIZED ACCORDING TO THEIR FILL TYPE NUMBER. TYPE 1 IS THE FIRST PRIORITY AND TYPE 6 IS THE LAST. CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING EARTHWORK TO ENSURE THAT DESIGN CRITERIA OF FILL AREAS ARE ACHIEVED IN ORDER OF PRIORITY.
2. POTENTIAL TEMPORARY WATER CONTROL DAM SHALL BE CONSTRUCTED OF EXCAVATED MATERIAL FROM BUTANO CREEK, SANDBAGS, OR SIMILAR TO CREATE TEMPORARY IMPOUNDMENT. AREAS BENEATH THE DAM SHALL BE RESTORED TO EXISTING CONDITION OR THEIR RESPECTIVE PROJECT FILL CONDITION. PROVIDE DAM PLAN TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION.
3. SEED COMPLETED NATURAL LEVEE ANALOG SURFACE WITH STERILE BARLEY OR APPROVED EQUIVALENT FOR RAPID EROSION CONTROL, AS PER SPECIFICATIONS.
4. TYPE 1 MARSH FILL - ADD EXCAVATED SEDIMENT TO FILL EXISTING CHANNEL TO ELEV 4.9'. SEE SECTION B.
5. TYPE 2 MARSH FILL - ADD EXCAVATED SEDIMENT TO FILL EXISTING LOWER MARSH POND TO ELEV 7.4'.
6. TYPE 3 MARSH FILL - ADD EXCAVATED SEDIMENT TO FILL EXISTING CHANNEL TO ELEV 5.8'. SEE SECTION C.
7. TYPE 4 MARSH FILL - ADD EXCAVATED SEDIMENT TO FILL EXISTING CHANNEL TO ELEV 7.4'. SEE SECTION D.
8. TYPE 5 MARSH FILL - ADD EXCAVATED SEDIMENT TO ENHANCE NATURAL LEVEE ANALOG ALONG BUTANO CREEK ACCORDING TO ELEVATIONS AND DIMENSIONS SHOWN. SEE SECTION E.
9. TYPE 6 MARSH FILL - LOWEST PRIORITY FILL TYPE. EVENLY DISTRIBUTE EXCAVATED SEDIMENT IN AREA SHOWN FOR THIS FILL TYPE, PRIORITIZING LOW-LYING AREAS.

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PLAN VIEW (3 OF 7)

JOB NUMBER
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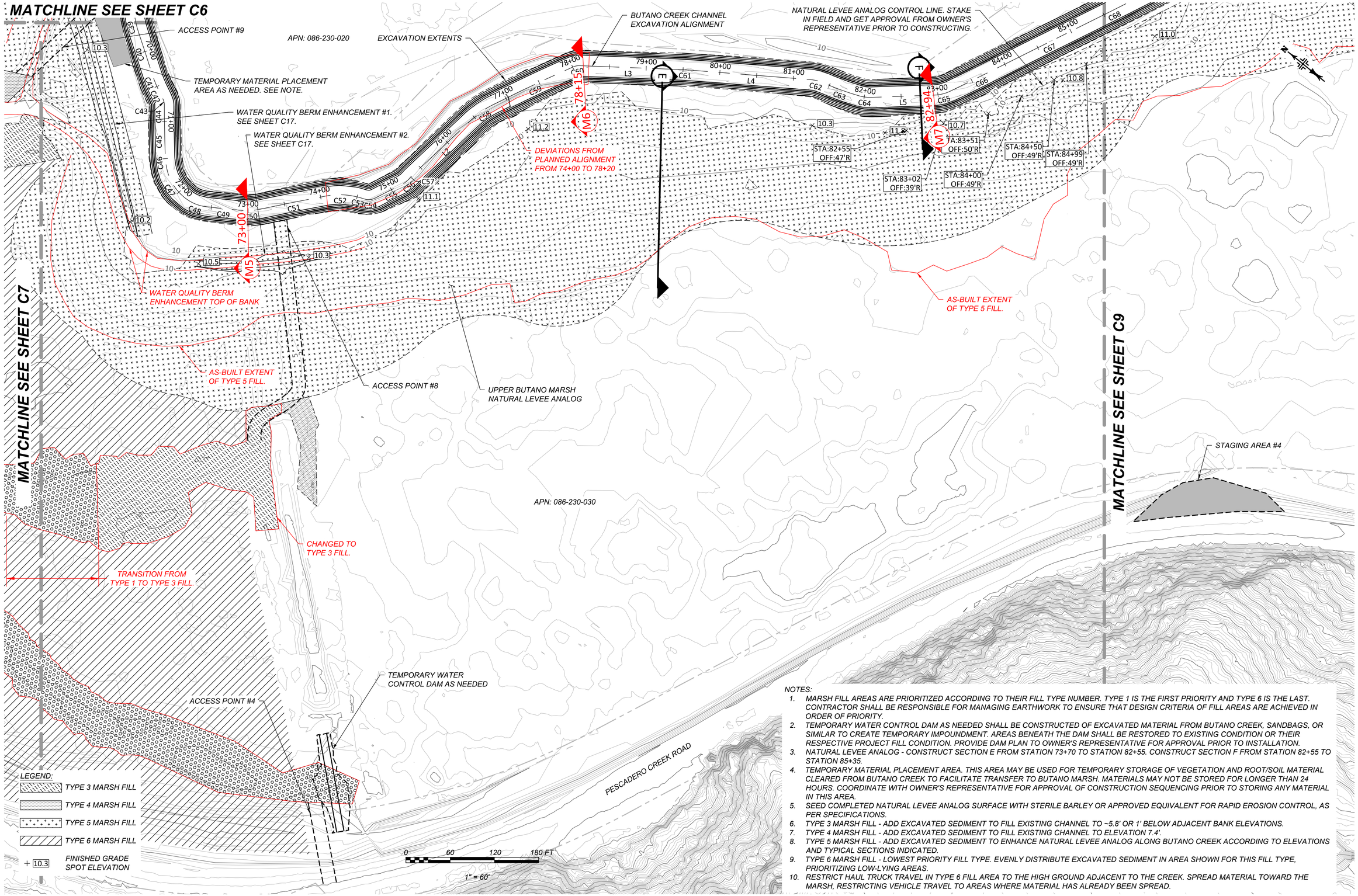
SHEET
C7
7 OF 19



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2. TEMPORARY WATER CONTROL DAM AS NEEDED SHALL BE CONSTRUCTED OF EXCAVATED MATERIAL FROM BUTANO CREEK, SANDBAGS, OR SIMILAR TO CREATE TEMPORARY IMPOUNDMENT. AREAS BENEATH THE DAM SHALL BE RESTORED TO EXISTING CONDITION OR THEIR RESPECTIVE PROJECT FILL CONDITION. PROVIDE DAM PLAN TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION.
3. NATURAL LEVEE ANALOG - CONSTRUCT SECTION E FROM STATION 73+70 TO STATION 82+55. CONSTRUCT SECTION F FROM STATION 82+55 TO STATION 85+35.
4. TEMPORARY MATERIAL PLACEMENT AREA. THIS AREA MAY BE USED FOR TEMPORARY STORAGE OF VEGETATION AND ROOT/SOIL MATERIAL CLEARED FROM BUTANO CREEK TO FACILITATE TRANSFER TO BUTANO MARSH. MATERIALS MAY NOT BE STORED FOR LONGER THAN 24 HOURS. COORDINATE WITH OWNER'S REPRESENTATIVE FOR APPROVAL OF CONSTRUCTION SEQUENCING PRIOR TO STORING ANY MATERIAL IN THIS AREA.
5. SEED COMPLETED NATURAL LEVEE ANALOG SURFACE WITH STERILE BARLEY OR APPROVED EQUIVALENT FOR RAPID EROSION CONTROL, AS PER SPECIFICATIONS.
6. TYPE 3 MARSH FILL - ADD EXCAVATED SEDIMENT TO FILL EXISTING CHANNEL TO ~5.8' OR 1' BELOW ADJACENT BANK ELEVATIONS.
7. TYPE 4 MARSH FILL - ADD EXCAVATED SEDIMENT TO FILL EXISTING CHANNEL TO ELEVATION 7.4'.
8. TYPE 5 MARSH FILL - ADD EXCAVATED SEDIMENT TO ENHANCE NATURAL LEVEE ANALOG ALONG BUTANO CREEK ACCORDING TO ELEVATIONS AND TYPICAL SECTIONS INDICATED.
9. TYPE 6 MARSH FILL - LOWEST PRIORITY FILL TYPE. EVENLY DISTRIBUTE EXCAVATED SEDIMENT IN AREA SHOWN FOR THIS FILL TYPE, PRIORITIZING LOW-LYING AREAS.
10. RESTRICT HAUL TRUCK TRAVEL IN TYPE 6 FILL AREA TO THE HIGH GROUND ADJACENT TO THE CREEK. SPREAD MATERIAL TOWARD THE MARSH, RESTRICTING VEHICLE TRAVEL TO AREAS WHERE MATERIAL HAS ALREADY BEEN SPREAD.

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CALIFORNIA
PESCADERO
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

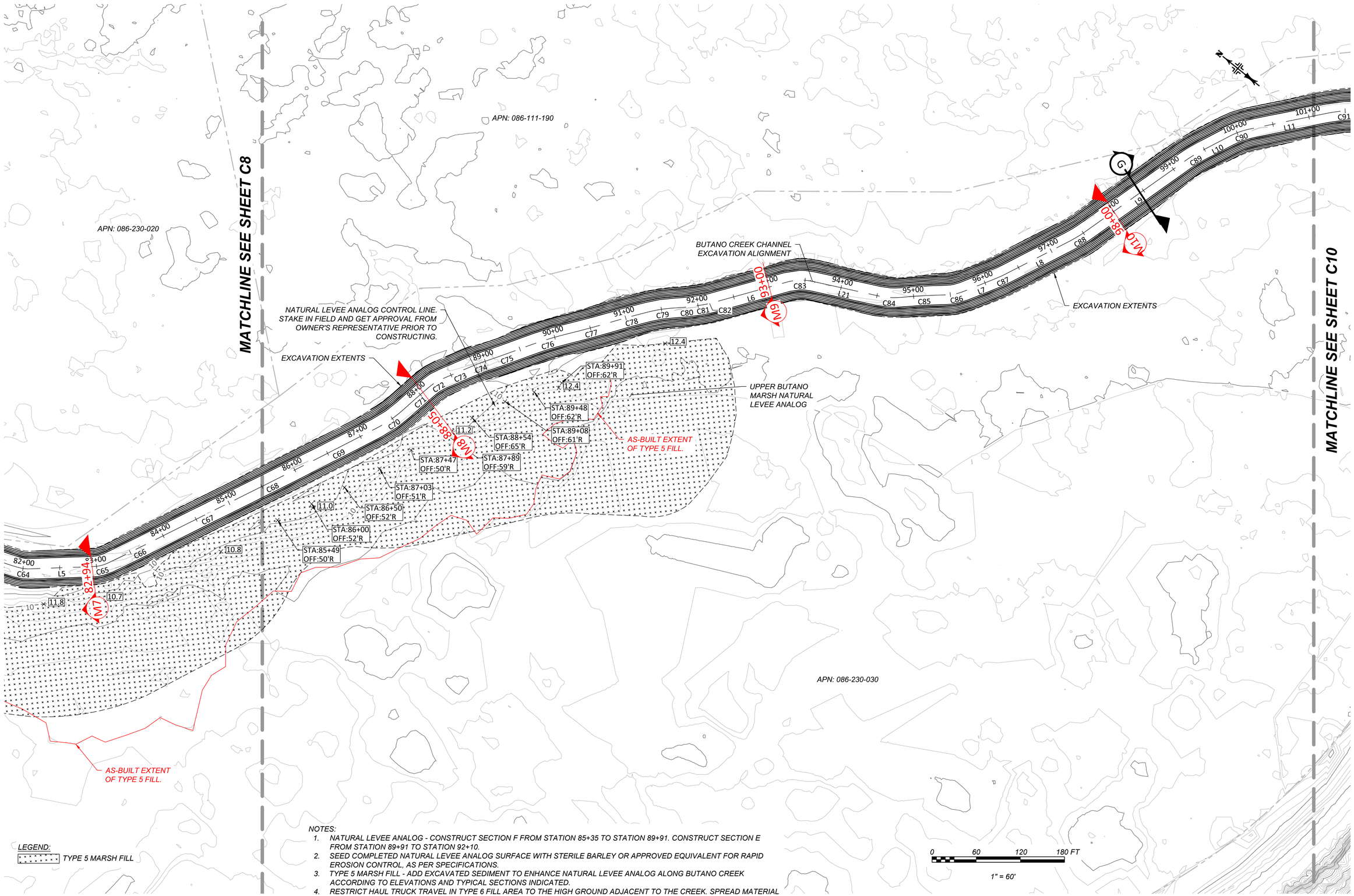
PLAN VIEW (4 OF 7)

JOB NUMBER 16-1027-4

DATE DEC 2019

SHEET C8

8 OF 19



LEGEND:

TYPE 5 MARSH FILL

NOTES:

1. NATURAL LEVEE ANALOG - CONSTRUCT SECTION F FROM STATION 85+35 TO STATION 89+91. CONSTRUCT SECTION E FROM STATION 89+91 TO STATION 92+10.
2. SEED COMPLETED NATURAL LEVEE ANALOG SURFACE WITH STERILE BARLEY OR APPROVED EQUIVALENT FOR RAPID EROSION CONTROL, AS PER SPECIFICATIONS.
3. TYPE 5 MARSH FILL - ADD EXCAVATED SEDIMENT TO ENHANCE NATURAL LEVEE ANALOG ALONG BUTANO CREEK ACCORDING TO ELEVATIONS AND TYPICAL SECTIONS INDICATED.
4. RESTRICT HAUL TRUCK TRAVEL IN TYPE 6 FILL AREA TO THE HIGH GROUND ADJACENT TO THE CREEK. SPREAD MATERIAL TOWARD THE MARSH, RESTRICTING VEHICLE TRAVEL TO AREAS WHERE MATERIAL HAS ALREADY BEEN SPREAD.

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REVISION NOTES

DESIGNED CH/JS/SD
DRAWN JP/JM
REVIEWED SD
APPROVED CH

PREPARED BY: cbec eco engineering

CLIENT: SAN MATEO RESOURCE CONSERVATION DISTRICT

SAN MATEO
RESOURCE CONSERVATION DISTRICT
80 STONE PINE ROAD #100
HALF MOON BAY, CA 94019
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CALIFORNIA
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BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

PLAN VIEW (5 OF 7)

JOB NUMBER 16-1027-4

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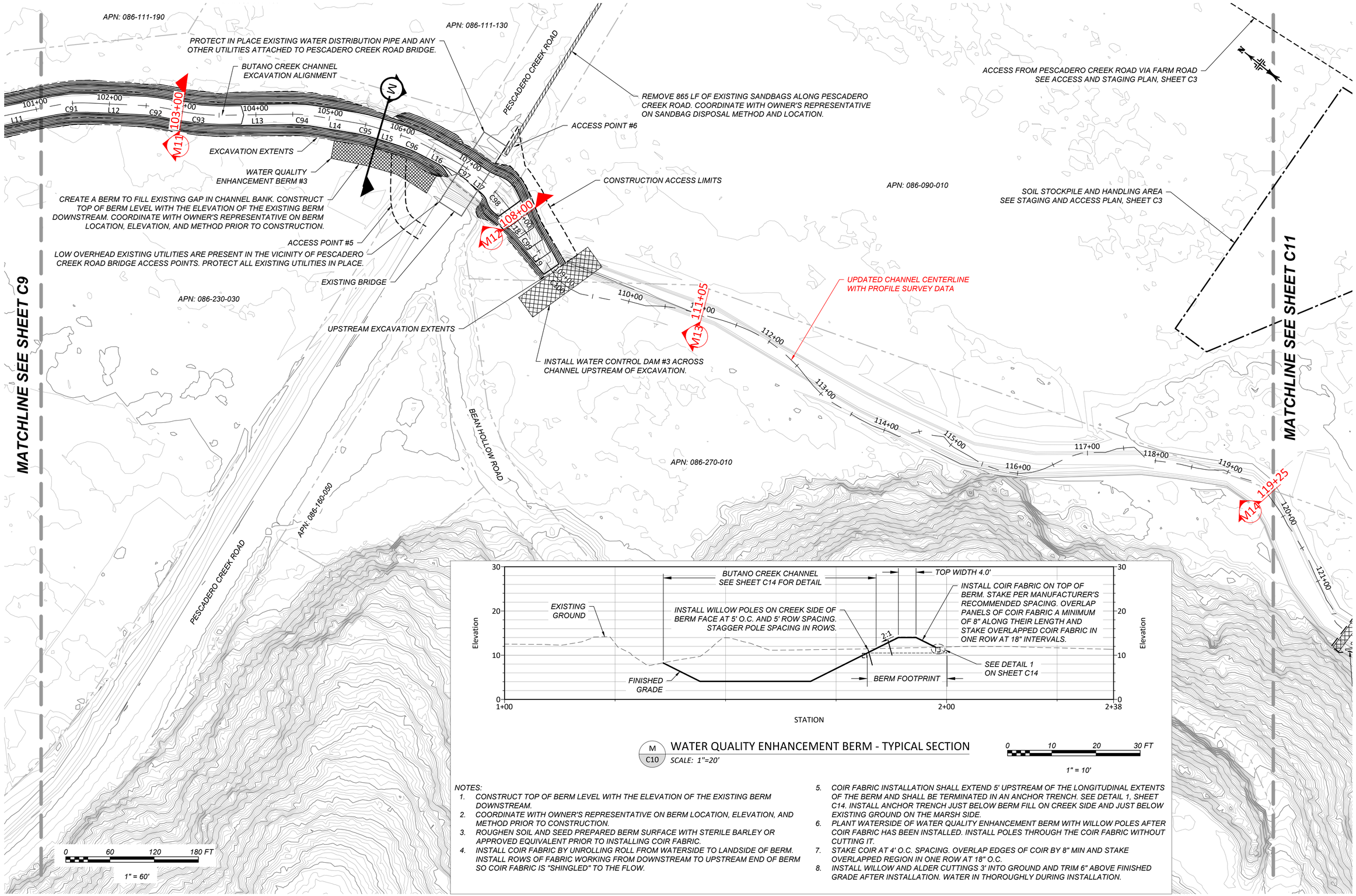
SHEET C9

9 OF 19



M / C10 WATER QUALITY ENHANCEMENT BERM - TYPICAL SECTION

SCALE: 1"=20'

NOTES:

1. CONSTRUCT TOP OF BERM LEVEL WITH THE ELEVATION OF THE EXISTING BERM DOWNSTREAM.
2. COORDINATE WITH OWNER'S REPRESENTATIVE ON BERM LOCATION, ELEVATION, AND METHOD PRIOR TO CONSTRUCTION.
3. ROUGHEN SOIL AND SEED PREPARED BERM SURFACE WITH STERILE BARLEY OR APPROVED EQUIVALENT PRIOR TO INSTALLING COIR FABRIC.
4. INSTALL COIR FABRIC BY UNROLLING ROLL FROM WATERSIDE TO LANDSIDE OF BERM. INSTALL ROWS OF FABRIC WORKING FROM DOWNSTREAM TO UPSTREAM END OF BERM SO COIR FABRIC IS "SHINGLED" TO THE FLOW.
5. COIR FABRIC INSTALLATION SHALL EXTEND 5' UPSTREAM OF THE LONGITUDINAL EXTENTS OF THE BERM AND SHALL BE TERMINATED IN AN ANCHOR TRENCH. SEE DETAIL 1, SHEET C14. INSTALL ANCHOR TRENCH JUST BELOW BERM FILL ON CREEK SIDE AND JUST BELOW EXISTING GROUND ON THE MARSH SIDE.
6. PLANT WATERSIDE OF WATER QUALITY ENHANCEMENT BERM WITH WILLOW POLES AFTER COIR FABRIC HAS BEEN INSTALLED. INSTALL POLES THROUGH THE COIR FABRIC WITHOUT CUTTING IT.
7. STAKE COIR AT 4' O.C. SPACING. OVERLAP EDGES OF COIR BY 8" MIN AND STAKE OVERLAPPED REGION IN ONE ROW AT 18" O.C.
8. INSTALL WILLOW AND ALDER CUTTINGS 3' INTO GROUND AND TRIM 6" ABOVE FINISHED GRADE AFTER INSTALLATION. WATER IN THOROUGHLY DURING INSTALLATION.

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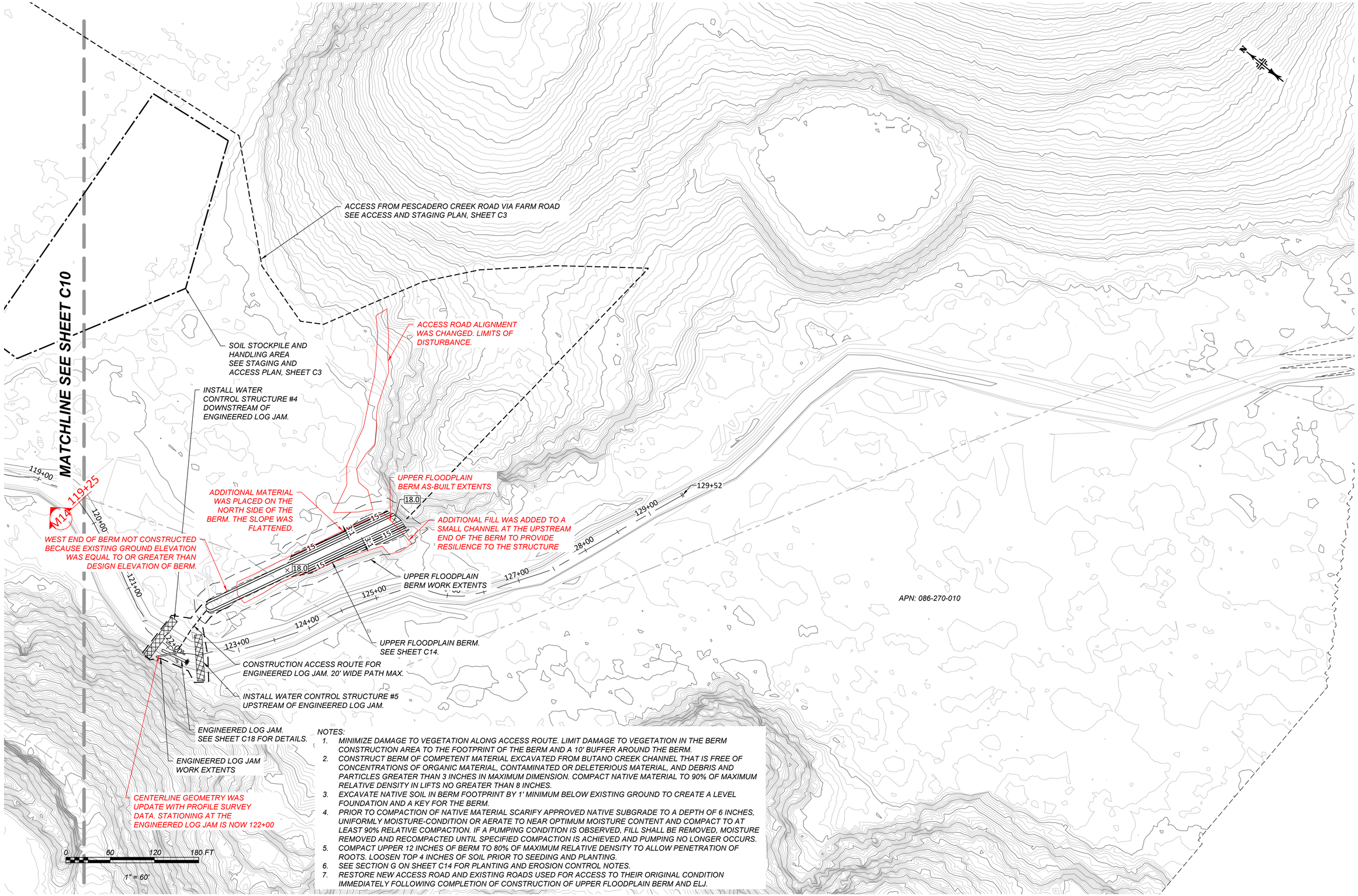
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

PLAN VIEW (6 OF 7)

JOB NUMBER 16-1027-4
DATE FEB 2020
SHEET C10
10 OF 19



NOTES:

1. MINIMIZE DAMAGE TO VEGETATION ALONG ACCESS ROUTE. LIMIT DAMAGE TO VEGETATION IN THE BERM CONSTRUCTION AREA TO THE FOOTPRINT OF THE BERM AND A 10' BUFFER AROUND THE BERM.
2. CONSTRUCT BERM OF COMPETENT MATERIAL EXCAVATED FROM BUTANO CREEK CHANNEL THAT IS FREE OF CONCENTRATIONS OF ORGANIC MATERIAL, CONTAMINATED OR DELETERIOUS MATERIAL, AND DEBRIS AND PARTICLES GREATER THAN 3 INCHES IN MAXIMUM DIMENSION. COMPACT NATIVE MATERIAL TO 90% OF MAXIMUM RELATIVE DENSITY IN LIFTS NO GREATER THAN 8 INCHES.
3. EXCAVATE NATIVE SOIL IN BERM FOOTPRINT BY 1' MINIMUM BELOW EXISTING GROUND TO CREATE A LEVEL FOUNDATION AND A KEY FOR THE BERM.
4. PRIOR TO COMPACTION OF NATIVE MATERIAL SCARIFY APPROVED NATIVE SUBGRADE TO A DEPTH OF 6 INCHES, UNIFORMLY MOISTURE-CONDITION OR AERATE TO NEAR OPTIMUM MOISTURE CONTENT AND COMPACT TO AT LEAST 90% RELATIVE COMPACTION. IF A PUMPING CONDITION IS OBSERVED, FILL SHALL BE REMOVED, MOISTURE REMOVED AND RECOMPACTED UNTIL SPECIFIED COMPACTION IS ACHIEVED AND PUMPING NO LONGER OCCURS.
5. COMPACT UPPER 12 INCHES OF BERM TO 80% OF MAXIMUM RELATIVE DENSITY TO ALLOW PENETRATION OF ROOTS. LOOSEN TOP 4 INCHES OF SOIL PRIOR TO SEEDING AND PLANTING.
6. SEE SECTION G ON SHEET C14 FOR PLANTING AND EROSION CONTROL NOTES.
7. RESTORE NEW ACCESS ROAD AND EXISTING ROADS USED FOR ACCESS TO THEIR ORIGINAL CONDITION IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION OF UPPER FLOODPLAIN BERM AND ELJ.

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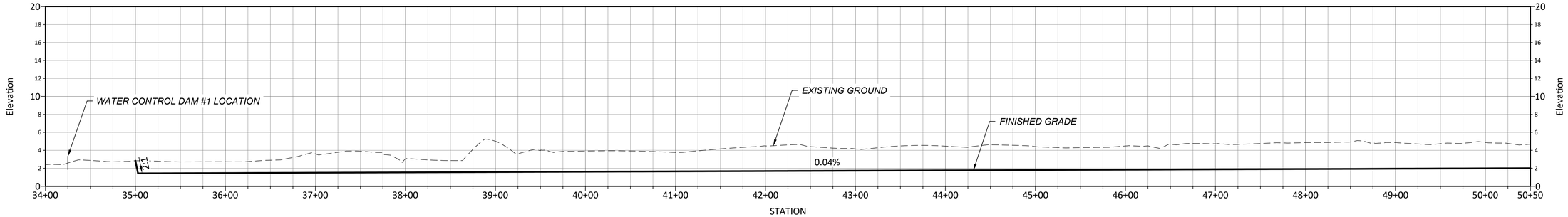
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT
PLAN VIEW (7 OF 7)

JOB NUMBER 16-1027-4
DATE FEB 2020
SHEET C11
11 OF 19

A B C D E

1



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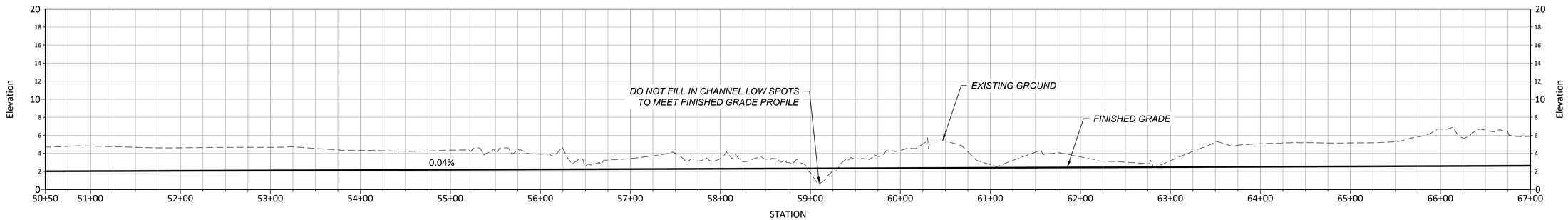

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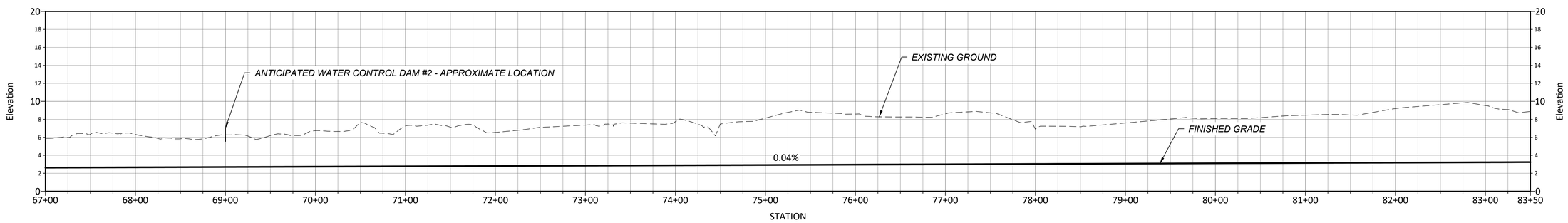

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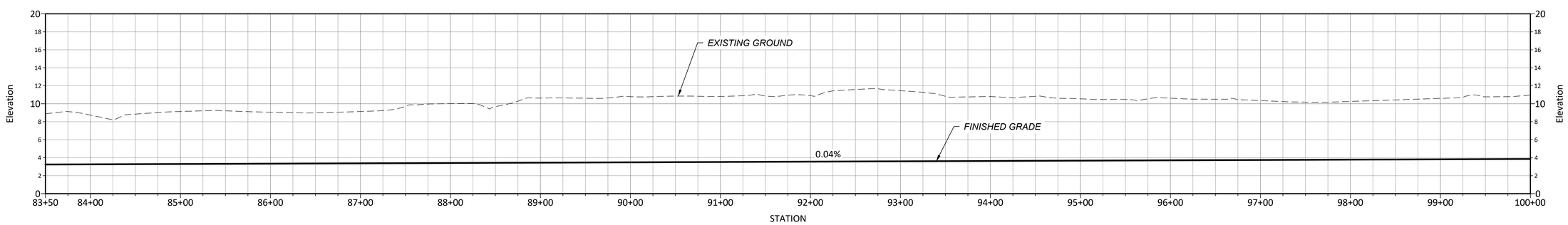

HORIZONTAL SCALE: 0 60 120 180 FT
1" = 60'

VERTICAL SCALE: 0 6 12 18 FT
1" = 6'

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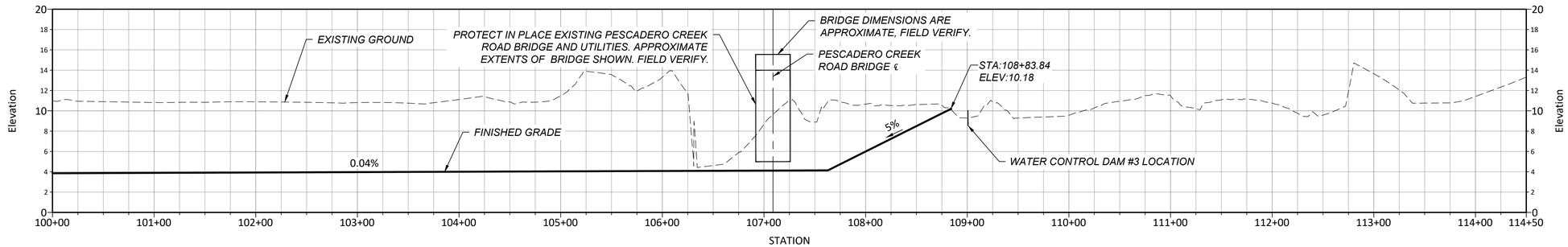
PESCADERO CALIFORNIA
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

CHANNEL PROFILE (1 OF 2)

JOB NUMBER 16-1027-3
DATE OCT 2018
SHEET C12
12 OF 19



HORIZONTAL SCALE: 0 60 120 180 FT
1" = 60'

VERTICAL SCALE: 0 6 12 18 FT
1" = 6'

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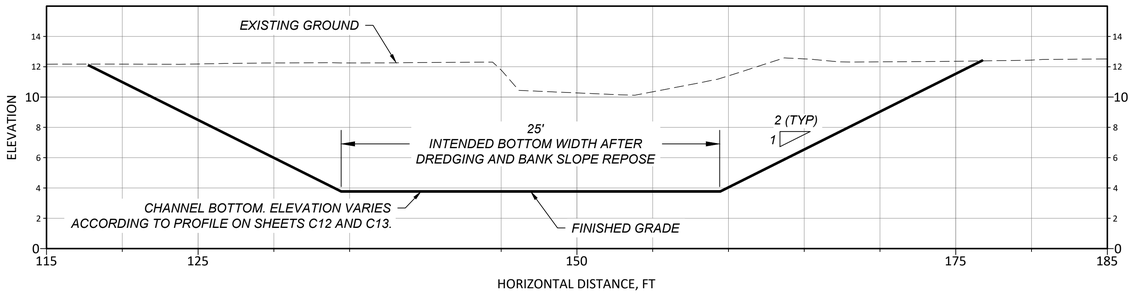
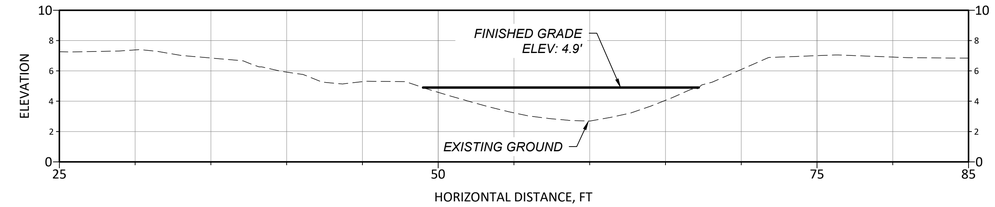
PESCADERO CALIFORNIA
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT
CHANNEL PROFILE (2 OF 2)

JOB NUMBER 16-1027-3
DATE OCT 2018
SHEET C13
13 OF 19

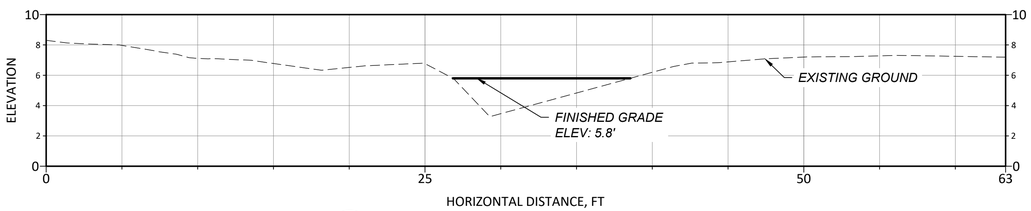


A / C5 TYPICAL BUTANO CREEK CHANNEL DREDGE SECTION
SCALE: 1"=5'

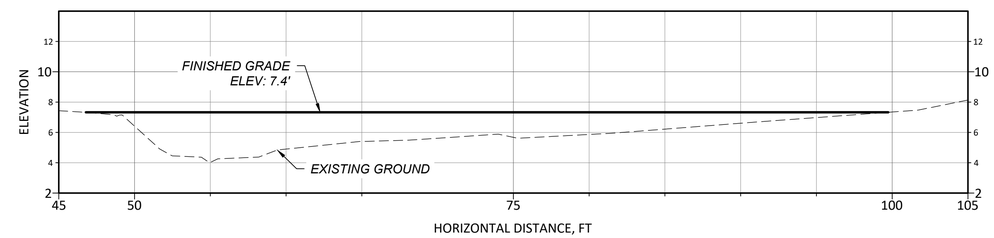


B / C6 SEDIMENT REUSE SECTION - TYPE 1 FILL
SCALE: 1"=5'

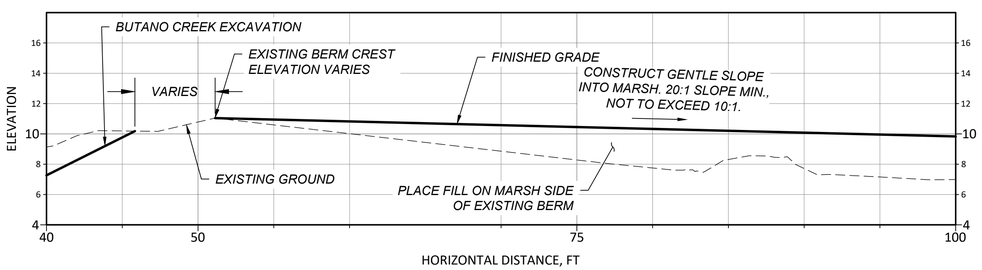
NOTES:
1. DREDGING SHALL MAINTAIN THE DESIGN CROSS-SECTIONAL AREA OF THE CHANNEL AS REPRESENTED BY FINISHED GRADE LINES AND CONTOURS.
2. DREDGE CHANNEL IN STEPS TO APPROXIMATE DESIGN SLOPES WHERE DEPTH OF DREDGING IS GREATER THAN 3'.
3. PREPARE AND SUBMIT A PRELIMINARY DREDGING PLAN OF OPERATION TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO DREDGING.



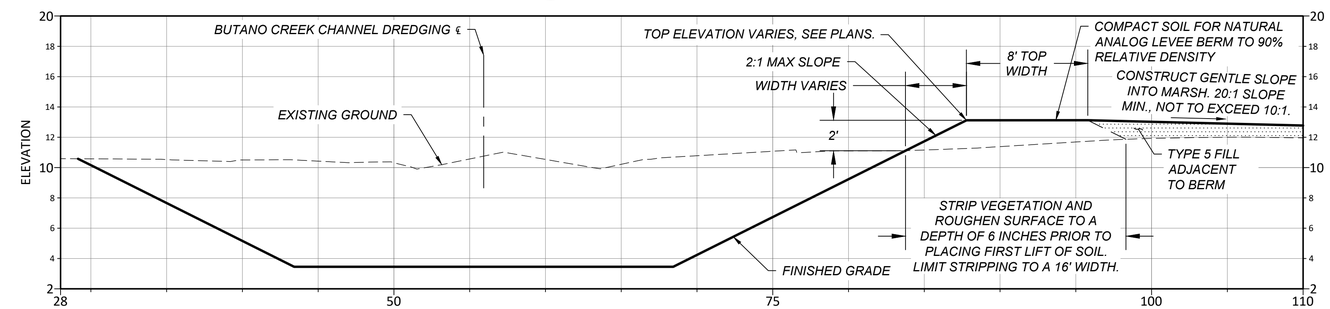
C / C7 SEDIMENT REUSE SECTION - TYPE 3 FILL
SCALE: 1"=5'



D / C7 SEDIMENT REUSE SECTION - TYPE 4 FILL
SCALE: 1"=5'



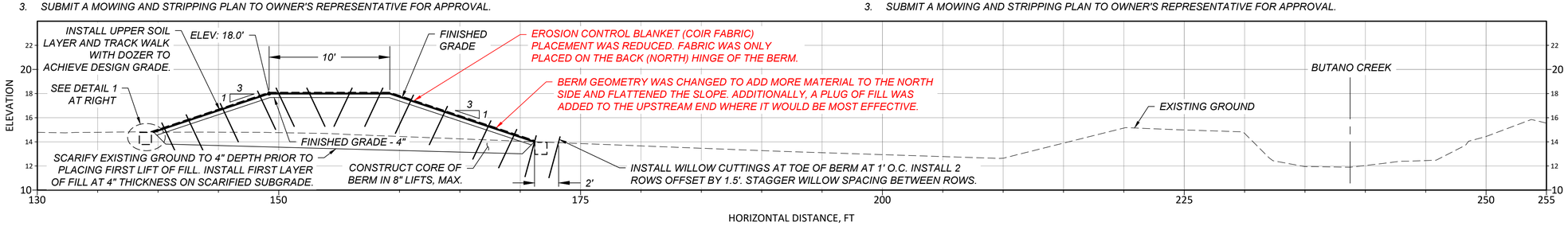
E / C8 SEDIMENT REUSE SECTION - TYPE 5 FILL - NATURAL LEVEE ANALOG
SCALE: 1"=5'



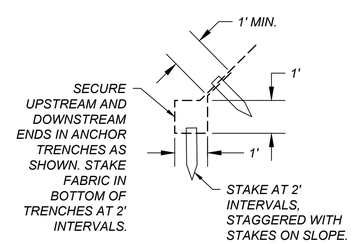
F / C8 UPPER BUTANO MARSH NATURAL LEVEE ANALOG - TYPICAL SECTION
SCALE: 1"=5'

NOTES:
1. VEGETATION CLEARING AND STRIPPING FOR HAUL ROUTE SHALL BE DONE IN THE PRESENCE OF A BIOLOGICAL MONITOR.
2. VEGETATION SHALL BE CLEARED IN TWO PASSES. THE FIRST PASS SHALL REDUCE VEGETATION TO 1' ABOVE GROUND. THE SECOND PASS SHALL REDUCE VEGETATION TO 3" ABOVE GROUND.
3. SUBMIT A MOWING AND STRIPPING PLAN TO OWNER'S REPRESENTATIVE FOR APPROVAL.

NOTES:
1. VEGETATION CLEARING AND STRIPPING FOR HAUL ROUTE AND BERM FOOTPRINT SHALL BE DONE IN THE PRESENCE OF A BIOLOGICAL MONITOR.
2. VEGETATION SHALL BE CLEARED IN TWO PASSES. THE FIRST PASS SHALL REDUCE VEGETATION TO 1' ABOVE GROUND. THE SECOND PASS SHALL REDUCE VEGETATION TO 3" ABOVE GROUND.
3. SUBMIT A MOWING AND STRIPPING PLAN TO OWNER'S REPRESENTATIVE FOR APPROVAL.



G / C11 UPPER FLOODPLAIN BERM SECTION
SCALE: 1"=5'



1 / C14 ANCHOR TRENCH DETAIL
NOT TO SCALE

NOTES:
1. TOP ELEVATION OF UPPER FLOODPLAIN BERM IS CONSTANT. HEIGHT OF BERM VARIES ACCORDING TO CHANGES IN EXISTING GROUND TOPOGRAPHY.
2. ROUGHEN SOIL AND SEED PREPARED BERM SURFACE WITH STERILE BARLEY OR APPROVED EQUIVALENT PRIOR TO INSTALLING COIR FABRIC.
3. INSTALL COIR FABRIC BY UNROLLING ROLL FROM WATERSIDE TO LANDSIDE OF BERM. INSTALL ROWS OF FABRIC WORKING FROM DOWNSTREAM TO UPSTREAM END OF BERM SO COIR FABRIC IS "SHINGLED" TO THE FLOW.
4. COIR FABRIC INSTALLATION SHALL EXTEND 5' UPSTREAM OF THE LONGITUDINAL EXTENTS OF THE BERM AND SHALL BE TERMINATED IN AN ANCHOR TRENCH. SEE DETAIL 1, THIS SHEET.
5. PLANT UPPER FLOODPLAIN BERM WITH WILLOW AND ALDER CUTTINGS AFTER COIR FABRIC HAS BEEN INSTALLED. INSTALL POLES THROUGH THE COIR FABRIC WITHOUT CUTTING IT.
6. STAKE COIR AT 4' O.C. SPACING. OVERLAP EDGES OF COIR BY 8" MIN AND STAKE OVERLAPPED REGION IN ONE ROW AT 18" O.C.
7. INSTALL WILLOW AND ALDER CUTTINGS 3' INTO GROUND AND TRIM 6" ABOVE FINISHED GRADE AFTER INSTALLATION. WATER IN THOROUGHLY DURING INSTALLATION.

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PESCADERO CALIFORNIA
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT
SECTIONS

JOB NUMBER 16-1027-4
DATE DEC 2019
SHEET C14
14 OF 19

BUTANO CREEK DREDGE CHANNEL ALIGNMENT GEOMETRY				
NUMBER	LENGTH	RADIUS	START POINT	END POINT
C1	155.8	191	E:6006674.63 N: 1923562.50	E: 6006633.16 N: 1923416.76
C2	50.1	243	E:6006633.16 N: 1923416.76	E: 6006634.54 N: 1923366.81
C3	151.5	1214	E:6006634.54 N: 1923366.81	E: 6006613.74 N: 1923216.80
C4	127.4	237	E:6006613.74 N: 1923216.80	E: 6006622.43 N: 1923091.21
C5	73.7	82	E:6006622.43 N: 1923091.21	E: 6006672.82 N: 1923040.85
C6	35.9	54	E:6006672.82 N: 1923040.85	E: 6006700.52 N: 1923019.05
C7	145.3	966	E:6006700.52 N: 1923019.05	E: 6006770.04 N: 1922891.58
C8	278.5	582	E:6006770.04 N: 1922891.58	E: 6006939.85 N: 1922674.25
C9	47.8	1320	E:6006939.85 N: 1922674.25	E: 6006976.84 N: 1922643.95
C10	207.5	524	E:6006976.84 N: 1922643.95	E: 6007157.07 N: 1922543.93
C11	71.7	1546	E:6007157.07 N: 1922543.93	E: 6007224.85 N: 1922520.57
C12	77.1	405	E:6007224.85 N: 1922520.57	E: 6007294.19 N: 1922487.04
C13	48.4	76	E:6007294.19 N: 1922487.04	E: 6007340.61 N: 1922476.43
C14	260.5	1531	E:6007340.61 N: 1922476.43	E: 6007600.79 N: 1922479.24
C15	87.6	798	E:6007600.79 N: 1922479.24	E: 6007688.29 N: 1922477.54
C16	239.9	3892	E:6007688.29 N: 1922477.54	E: 6007928.19 N: 1922478.66
C17	107.1	338	E:6007928.19 N: 1922478.66	E: 6008033.03 N: 1922459.09
C18	110.5	1304	E:6008033.03 N: 1922459.09	E: 6008138.57 N: 1922426.38
C19	25.6	39	E:6008138.57 N: 1922426.38	E: 6008159.44 N: 1922412.45
C20	81.1	336	E:6008159.44 N: 1922412.45	E: 6008200.37 N: 1922342.72

BUTANO CREEK DREDGE CHANNEL ALIGNMENT GEOMETRY				
NUMBER	LENGTH	RADIUS	START POINT	END POINT
C21	20.3	54	E:6008200.37 N: 1922342.72	E: 6008204.81 N: 1922322.99
C22	62.2	1721	E:6008204.81 N: 1922322.99	E: 6008205.70 N: 1922260.80
C23	28.1	168	E:6008205.70 N: 1922260.80	E: 6008203.25 N: 1922232.87
C24	49.5	354	E:6008203.25 N: 1922232.87	E: 6008191.48 N: 1922184.85
C25	32.6	196	E:6008191.48 N: 1922184.85	E: 6008184.14 N: 1922153.09
C26	42.6	62	E:6008184.12 N: 1922152.97	E: 6008164.03 N: 1922116.32
L1	213.9		E: 6008164.03 N: 1922116.32	E: 6008004.25 N: 1921974.16
C27	26.3	297	E:6008004.25 N: 1921974.16	E: 6007984.98 N: 1921956.20
C28	190.7	1208	E:6007984.98 N: 1921956.20	E: 6007830.68 N: 1921844.40
C29	148.4	670	E:6007830.68 N: 1921844.40	E: 6007713.54 N: 1921753.70
C30	99.5	15132	E:6007713.54 N: 1921753.70	E: 6007642.31 N: 1921684.23
C31	36.6	53	E:6007642.31 N: 1921684.23	E: 6007626.64 N: 1921651.96
C32	78.2	210	E:6007626.64 N: 1921651.96	E: 6007604.04 N: 1921577.62
C33	31.8	488	E:6007604.04 N: 1921577.62	E: 6007588.39 N: 1921549.90
C34	19.5	48	E:6007588.39 N: 1921549.90	E: 6007581.89 N: 1921531.70
C35	31.9	170	E:6007581.89 N: 1921531.70	E: 6007574.53 N: 1921500.69
C36	32.1	9212	E:6007574.53 N: 1921500.69	E: 6007564.17 N: 1921470.32
C37	14.7	62	E:6007564.17 N: 1921470.32	E: 6007557.79 N: 1921457.09
C38	28.7	209	E:6007557.79 N: 1921457.09	E: 6007540.72 N: 1921434.04
C39	18.6	134	E:6007540.72 N: 1921434.04	E: 6007529.70 N: 1921419.13

BUTANO CREEK DREDGE CHANNEL ALIGNMENT GEOMETRY				
NUMBER	LENGTH	RADIUS	START POINT	END POINT
C40	57.2	3200	E:6007529.70 N: 1921419.13	E: 6007498.56 N: 1921371.20
C41	24.0	173	E:6007498.56 N: 1921371.20	E: 6007486.74 N: 1921350.36
C42	14.4	523	E:6007486.74 N: 1921350.36	E: 6007480.72 N: 1921337.30
C43	8.4	18	E:6007480.72 N: 1921337.30	E: 6007475.63 N: 1921330.66
C44	31.6	1960	E:6007475.63 N: 1921330.66	E: 6007451.24 N: 1921310.52
C45	36.4	3204	E:6007451.24 N: 1921310.52	E: 6007423.47 N: 1921286.94
C46	19.8	103	E:6007423.47 N: 1921286.94	E: 6007409.79 N: 1921272.70
C47	52.2	68	E:6007409.79 N: 1921272.70	E: 6007395.58 N: 1921223.85
C48	25.3	55	E:6007395.58 N: 1921223.85	E: 6007403.75 N: 1921200.19
C49	49.4	1684	E:6007403.75 N: 1921200.19	E: 6007430.69 N: 1921158.81
C50	23.6	79	E:6007430.69 N: 1921158.81	E: 6007446.57 N: 1921141.46
C51	92.4	3778	E:6007446.57 N: 1921141.46	E: 6007517.65 N: 1921082.48
C52	38.3	98	E:6007517.65 N: 1921082.48	E: 6007541.31 N: 1921052.67
C53	13.8	120	E:6007541.31 N: 1921052.67	E: 6007546.93 N: 1921040.03
C54	16.2	20	E:6007546.93 N: 1921040.03	E: 6007557.85 N: 1921028.73
C55	39.5	833	E:6007557.85 N: 1921028.73	E: 6007593.94 N: 1921012.76
C56	12.5	31	E:6007593.94 N: 1921012.76	E: 6007606.00 N: 1921009.86
C57	7.4	71	E:6007606.00 N: 1921009.86	E: 6007613.34 N: 1921009.25
L2	109.2		E: 6007613.34 N: 1921009.25	E: 6007721.49 N: 1920994.52
C58	36.3	126	E:6007721.49 N: 1920994.52	E: 6007756.29 N: 1920984.54

BUTANO CREEK DREDGE CHANNEL ALIGNMENT GEOMETRY				
NUMBER	LENGTH	RADIUS	START POINT	END POINT
C59	119.8	2321	E:6007756.29 N: 1920984.54	E: 6007864.21 N: 1920932.53
C60	9.1	20	E:6007864.21 N: 1920932.53	E: 6007871.08 N: 1920926.72
L3	132.6		E: 6007871.08 N: 1920926.72	E: 6007950.49 N: 1920820.56
C61	21.7	539	E:6007950.49 N: 1920820.56	E: 6007963.13 N: 1920802.94
L4	158.6		E: 6007963.13 N: 1920802.94	E: 6008052.96 N: 1920672.20
C62	19.5	58	E:6008052.96 N: 1920672.20	E: 6008061.10 N: 1920654.62
C63	51.3	374	E:6008061.10 N: 1920654.62	E: 6008077.88 N: 1920606.22
C64	16.5	52	E:6008077.88 N: 1920606.22	E: 6008086.60 N: 1920592.31
L5	85.5		E: 6008086.60 N: 1920592.31	E: 6008142.77 N: 1920527.85
C65	22.1	53	E:6008142.77 N: 1920527.85	E: 6008160.29 N: 1920514.63
C66	87.3	5713	E:6008160.29 N: 1920514.63	E: 6008239.63 N: 1920478.17
C67	118.4	15736	E:6008239.63 N: 1920478.17	E: 6008347.38 N: 1920429.16
C68	78.3	8255	E:6008347.38 N: 1920429.16	E: 6008418.69 N: 1920396.81
C69	123.5	16810	E:6008418.69 N: 1920396.81	E: 6008531.59 N: 1920346.73
C70	45.3	173	E:6008531.59 N: 1920346.73	E: 6008574.95 N: 1920334.11
C71	45.7	1289	E:6008574.95 N: 1920334.11	E: 6008620.02 N: 1920326.35
C72	21.9	73	E:6008620.02 N: 1920326.35	E: 6008640.63 N: 1920319.08
C73	44.8	53532	E:6008640.63 N: 1920319.08	E: 6008680.12 N: 1920298.00
C74	17.1	228	E:6008680.12 N: 1920298.00	E: 6008694.93 N: 1920289.36
C75	57.6	1578	E:6008694.93 N: 1920289.36	E: 6008744.15 N: 1920259.36

BUTANO CREEK DREDGE CHANNEL ALIGNMENT GEOMETRY				
NUMBER	LENGTH	RADIUS	START POINT	END POINT
C76	60.7	505	E:6008744.15 N: 1920259.36	E: 6008794.58 N: 1920225.65
C77	62.6	1368	E:6008794.58 N: 1920225.65	E: 6008845.30 N: 1920188.93
C78	51.2	1237	E:6008845.30 N: 1920188.93	E: 6008886.87 N: 1920158.99
C79	36.9	190	E:6008886.87 N: 1920158.99	E: 6008914.04 N: 1920134.06
C80	30.0	296	E:6008914.04 N: 1920134.06	E: 6008935.20 N: 1920112.74
C81	13.6	409	E:6008935.20 N: 1920112.74	E: 6008945.42 N: 1920103.75
C82	7.0	81	E:6008945.42 N: 1920103.75	E: 6008950.90 N: 1920099.48
L6	105.8		E: 6008950.90 N: 1920099.48	E: 6009037.07 N: 1920038.03
C83	34.8	71	E:6009037.07 N: 1920038.03	E: 6009059.48 N: 1920011.82
L21	91.6		E: 6009059.48 N: 1920011.82	E: 6009100.42 N: 1919929.90
C84	31.0	102	E:6009100.42 N: 1919929.90	E: 6009118.23 N: 1919904.71
C85	62.8	995	E:6009118.23 N: 1919904.71	E: 6009160.37 N: 1919858.17
C86	23.1	65	E:6009160.37 N: 1919858.17	E: 6009178.15 N: 1919843.57
L7	46.2		E: 6009178.15 N: 1919843.57	E: 6009218.51 N: 1919821.09
C87	16.1	176	E:6009218.51 N: 1919821.09	E: 6009232.93 N: 1919813.90
L8	95.6		E: 6009232.93 N: 1919813.90	E: 6009320.34 N: 1919775.21
C88	26.8	187	E:6009320.34 N: 1919775.21	E: 6009345.53 N: 1919766.16
L9	166.7		E: 6009345.53 N: 1919766.16	E: 6009505.99 N: 1919721.13
C89	24.4	180	E:6009505.99 N: 1919721.13	E: 6009528.93 N: 1919712.98
L10	43.9		E: 6009528.93 N: 1919712.98	E: 6009569.26 N: 1919695.52

BUTANO CREEK DREDGE CHANNEL ALIGNMENT GEOMETRY				
NUMBER	LENGTH	RADIUS	START POINT	END POINT
C90	30.6	109	E:6009569.26 N: 1919695.52	E: 6009595.27 N: 1919679.60
L11	105.6		E: 6009595.27 N: 1919679.60	E: 6009676.77 N: 1919612.41
C91	46.8	190	E:6009676.77 N: 1919612.41	E: 6009708.88 N: 1919578.49
L12	70.5		E: 6009708.88 N: 1919578.49	E: 6009750.69 N: 1919521.71
C92	44.4	253	E:6009750.69 N: 1919521.71	E: 6009773.77 N: 1919483.79
C93	72.8	306	E:6009773.77 N: 1919483.79	E: 6009813.45 N: 1919422.93
L13	86.0		E: 6009813.45 N: 1919422.93	E: 6009868.63 N: 1919356.99
C94	36.5	200	E:6009868.63 N: 1919356.99	E: 6009889.35 N: 1919327.06
L14	56.2		E: 6009889.35 N: 1919327.06	E: 6009917.02 N: 1919278.12
C95	27.6	200	E:6009917.02 N: 1919278.12	E: 6009928.89 N: 1919253.28
L15	36.4		E: 6009928.89 N: 1919253.28	E: 6009942.27 N: 1919219.45
C96	35.1	200	E:6009942.27 N: 1919219.45	E: 6009952.26 N: 1919185.86
L16	43.9		E: 6009952.26 N: 1919185.86	E: 6009960.42 N: 1919142.76
C97	42.1	200	E:6009960.42 N: 1919142.76	E: 6009963.85 N: 1919100.87
L17	10.3		E: 6009963.85 N: 1919100.87	E: 6009963.61 N: 1919090.53
C98	50.7	200	E:6009963.61 N: 1919090.53	E: 6009956.05 N: 1919040.56
L18	50.1		E: 6009956.05 N: 1919040.56	E: 6009942.34 N: 1918992.35
C99	3.0	200	E:6009942.34 N: 1918992.35	E: 6009941.49 N: 1918989.44
L19	60.7		E: 6009941.49 N: 1918989.44	E: 6009924.01 N: 1918931.29
C100	19.0	73	E:6009924.01 N: 1918931.29	E: 6009920.95 N: 1918912.57

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APPROVED CH

PREPARED BY: cbec eco engineering

CLIENT: SAN MATEO RESOURCE CONSERVATION DISTRICT
80 STONE PINE ROAD #100
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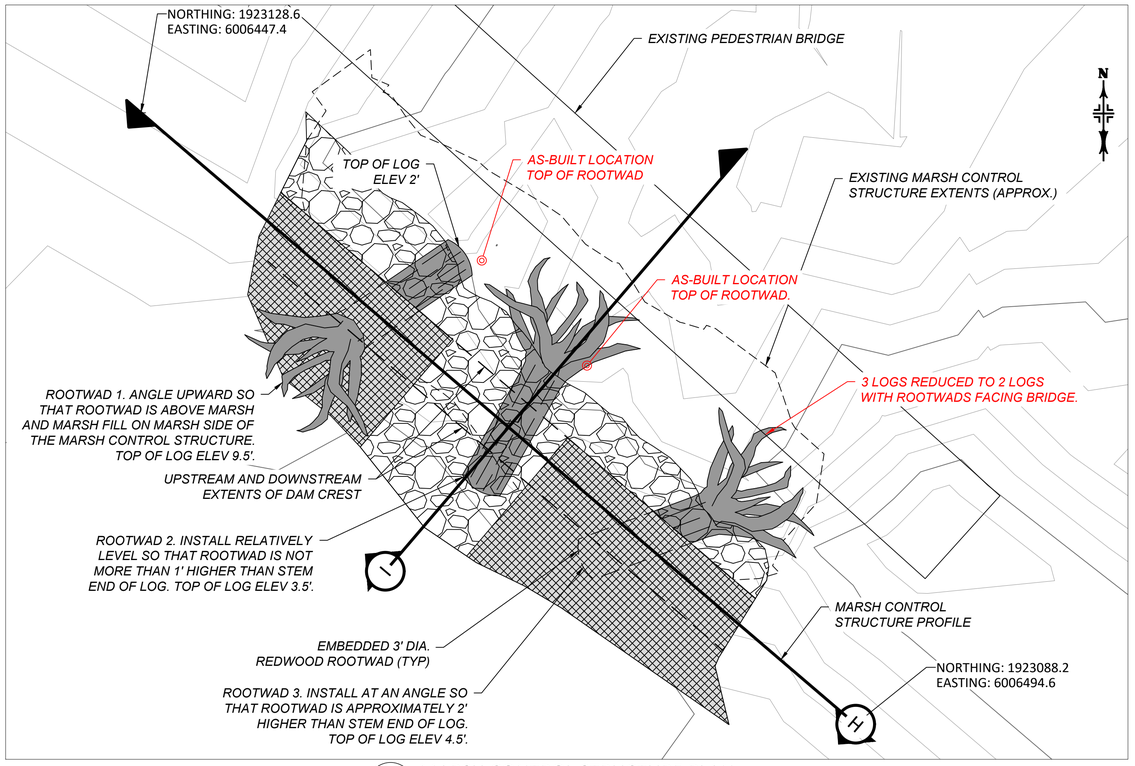
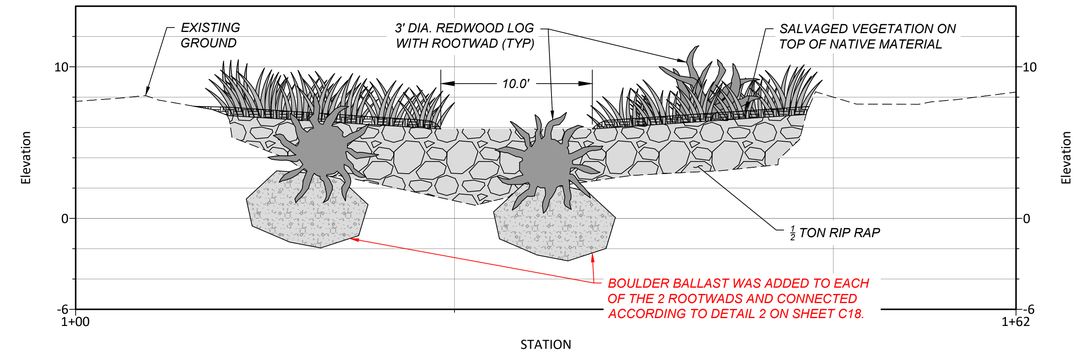
PESCADERO CALIFORNIA
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT
ALIGNMENT GEOMETRY TABLE

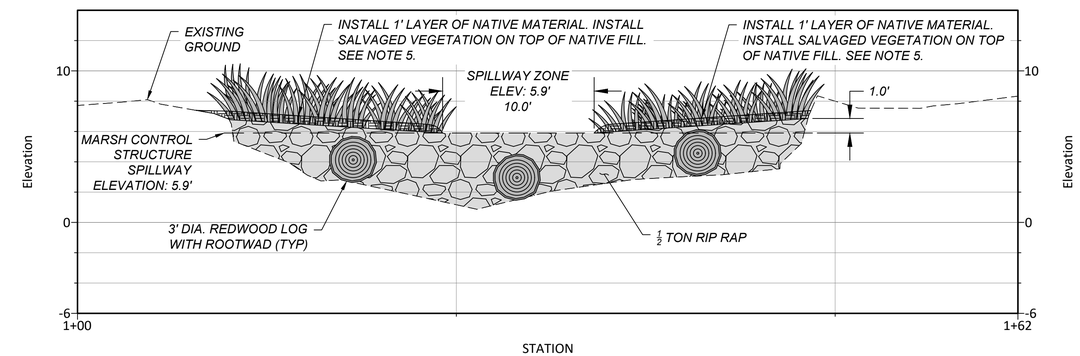
JOB NUMBER 16-1027-4
DATE DEC 2019
SHEET C15
15 OF 19



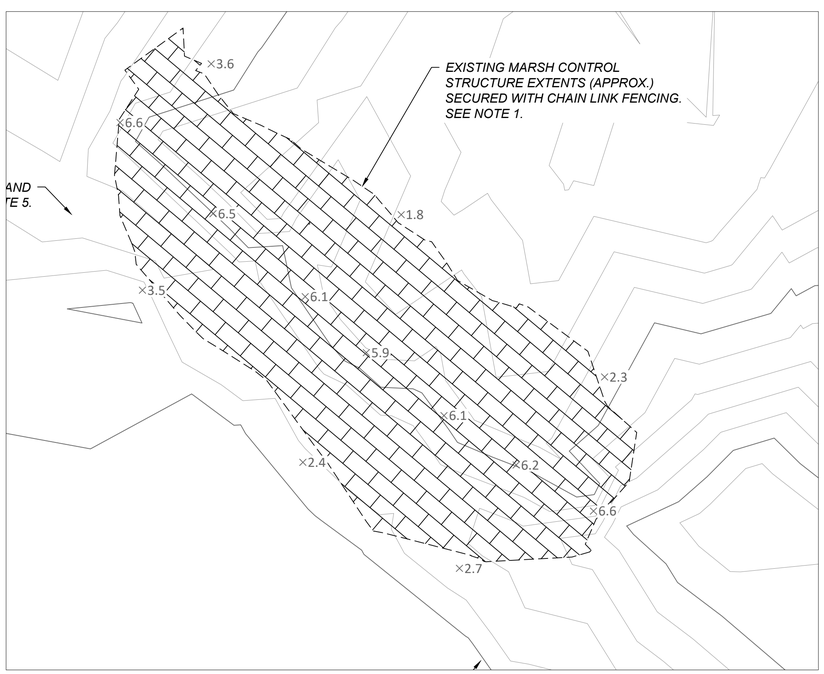
- / C5 MARSH CONTROL STRUCTURE PLAN
SCALE: HORIZONTAL 1"=5'



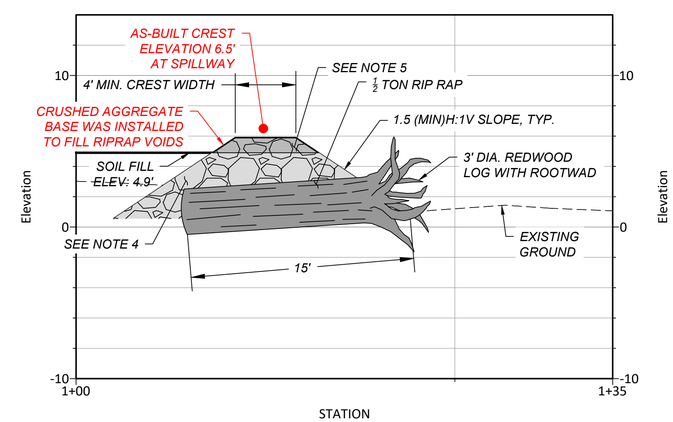
- / C16 MARSH CONTROL STRUCTURE ELEVATION
SCALE: 1"=5'



H / C16 MARSH CONTROL STRUCTURE PROFILE
SCALE: 1"=5'



- / C5 EXISTING STRUCTURE DEMOLITION PLAN
SCALE: HORIZONTAL 1"=5'



I / C16 MARSH CONTROL STRUCTURE SECTION
SCALE: 1"=5'

NOTE:

1. REMOVE AND LEGALLY DISPOSE OF EXISTING CHAIN LINK FENCING AND CONNECTION HARDWARE OFFSITE. REMOVE APPROXIMATELY 5,000 SANDBAGS AND COORDINATE WITH OWNER'S REPRESENTATIVE ON SANDBAG DISPOSAL METHOD AND LOCATION.
2. CONSTRUCT MARSH CONTROL STRUCTURE USING ½ TON CLASS RIPRAP.
3. EXCAVATE NATIVE SOIL IN BERM FOOTPRINT BY 1' MINIMUM BELOW EXISTING GROUND TO CREATE A LEVEL FOUNDATION AND A KEY FOR THE BERM.
4. BELOW ELEV 4.9', BACKFILL VOIDS IN ROCK WITH ¾" CRUSHED ROCK, RODDING CRUSHED ROCK INTO PLACE TO ENSURE VOIDS ARE FILLED.
5. ABOVE ELEV 4.9', BACKFILL VOIDS IN ROCK WITH NATIVE MATERIAL, RODDING NATIVE MATERIAL INTO PLACE TO ENSURE VOIDS ARE FILLED.
6. INSTALL 1' THICK LAYER OF NATIVE MATERIAL ON TOP OF RIPRAP ALONG CREST AS SHOWN IN SECTION I. INSTALL SALVAGED VEGETATION ON TOP OF NATIVE MATERIAL. COORDINATE WITH OWNER'S REPRESENTATIVE TO IDENTIFY AND HARVEST AND INSTALL SALVAGED VEGETATION. SALVAGED VEGETATION SHALL BE INSTALLED AFTER BUTANO CHANNEL (TYPE 1 FILL) HAS BEEN FILLED UP TO THE MARSH CONTROL STRUCTURE. COVER THE CREST OF THE MARSH CONTROL STRUCTURE AND GROUND 3' INTO THE MARSH. SECURE SALVAGED VEGETATION UNDER ROCKS 9" DIA. MIN. PLACED AT 5' O.C. IN 3 ROWS, STAGGERING PLACEMENT BETWEEN ROWS.
7. ELEVATIONS SHOWN FOR LOG PLACEMENT ARE APPROXIMATE. COORDINATE WITH OWNER'S REPRESENTATIVE DURING LOG PLACEMENT.

0 5 10 15 FT
1" = 5'

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PREPARED BY: cbec eco engineering

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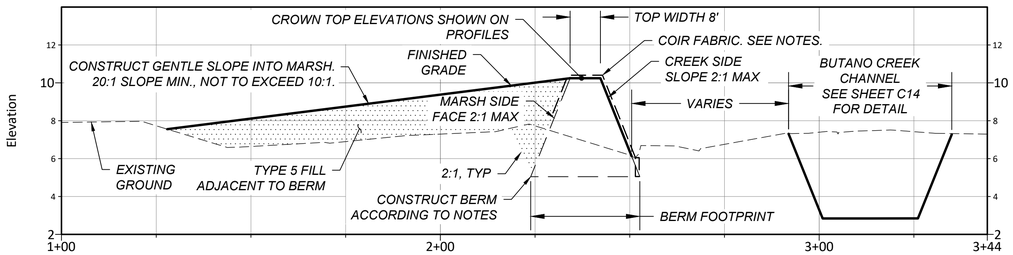
80 STONE PINE ROAD #100
HALF MOON BAY, CA 94019
(650) 712-7765

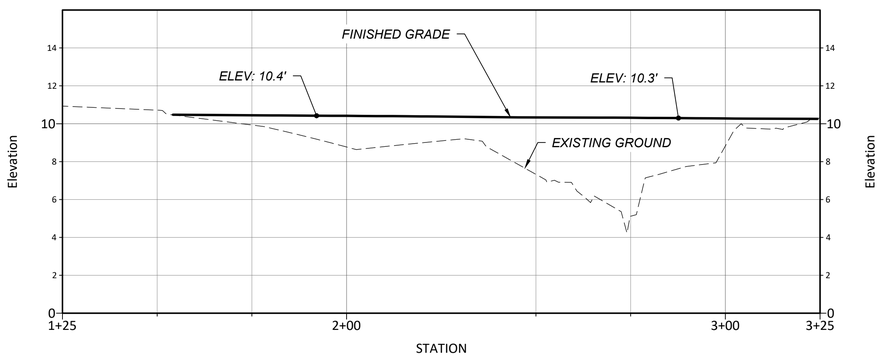
CALIFORNIA
PESCADERO
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

MARSH CONTROL STRUCTURE DETAILS

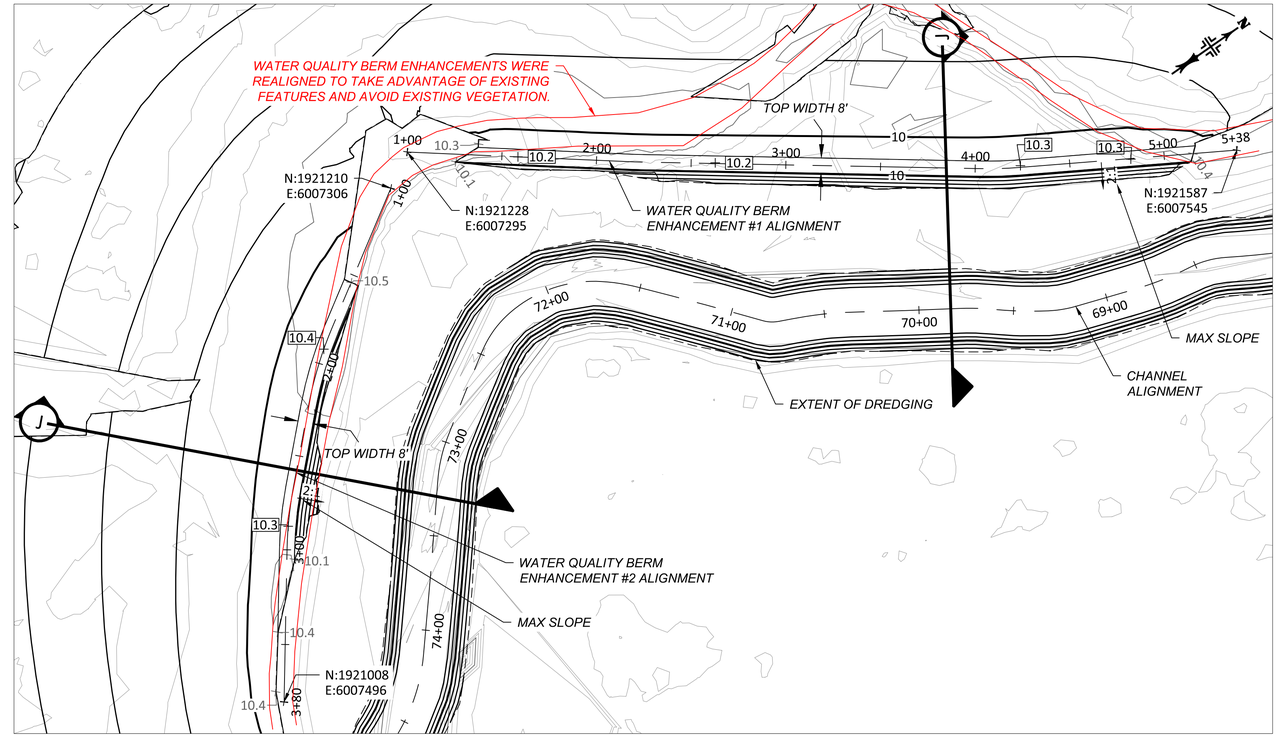
JOB NUMBER 16-1027-4
DATE DEC 2019
SHEET C16
16 OF 19



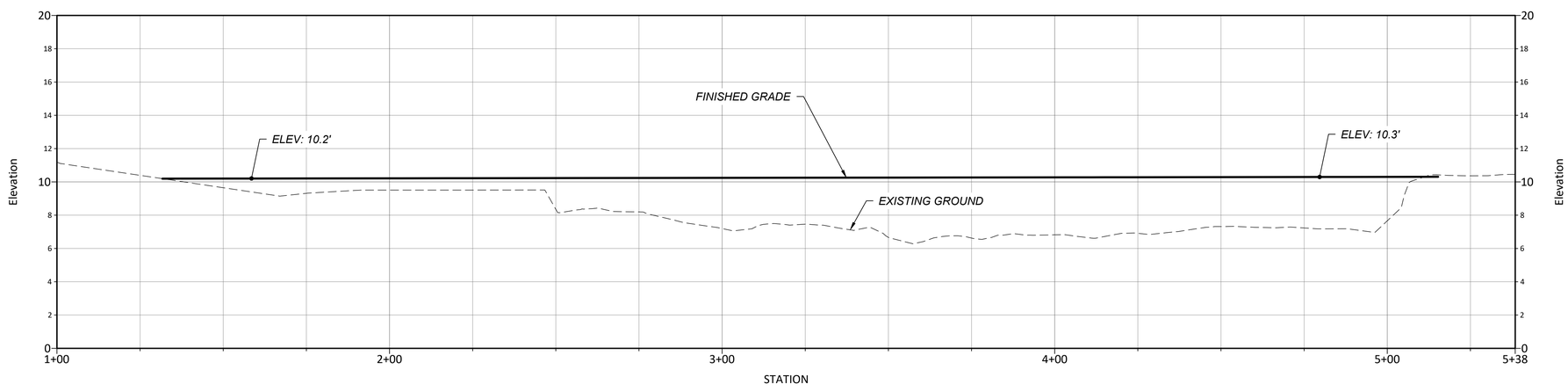
J / C17 WATER QUALITY BERM ENHANCEMENT TYPICAL SECTION
SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'



-- / C8 WATER QUALITY BERM ENHANCEMENT #2 PROFILE
SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'



WATER QUALITY BERM ENHANCEMENT PLAN
SCALE: 1"=40'



-- / C6,C8 WATER QUALITY BERM ENHANCEMENT #1 PROFILE
SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'

NOTES:

1. CONSTRUCT BERM OF COMPETENT MATERIAL EXCAVATED FROM BUTANO CREEK CHANNEL THAT IS FREE OF CONCENTRATIONS OF ORGANIC MATERIAL, CONTAMINATED OR DELETERIOUS MATERIAL, AND DEBRIS AND PARTICLES GREATER THAN 3 INCHES IN MAXIMUM DIMENSION. COMPACT APPROVED NATIVE MATERIAL TO 90% OF MAXIMUM RELATIVE DENSITY IN LIFTS NO GREATER THAN 8 INCHES.
2. EXCAVATE NATIVE SOIL IN BERM FOOTPRINT BY 1' MINIMUM BELOW EXISTING GROUND TO CREATE A LEVEL FOUNDATION AND A KEY FOR THE BERM.
3. PRIOR TO COMPACTION OF NATIVE MATERIAL SCARIFY NATIVE SUBGRADE TO A DEPTH OF 6 INCHES, UNIFORMLY MOISTURE-CONDITION OR AERATE TO NEAR OPTIMUM MOISTURE CONTENT AND COMPACT TO AT LEAST 90% RELATIVE COMPACTION. IF A PUMPING CONDITION IS OBSERVED, FILL SHALL BE REMOVED, MOISTURE REMOVED AND RECOMPACTED UNTIL SPECIFIED COMPACTION IS ACHIEVED AND PUMPING NO LONGER OCCURS.
4. COMPACT UPPER 12 INCHES OF BERM ON CREEK SIDE FACE AND CROWN TO 80% OF MAXIMUM RELATIVE DENSITY TO ALLOW PENETRATION OF ROOTS. LOOSEN TOP 4 INCHES OF SOIL ON CREEK SIDE FACE AND CROWN PRIOR TO SEEDING. ROUGHEN MARSH SIDE FACE TO 6 INCHES DEPTH PRIOR TO COMPACTING SLOPE FILL ADJACENT TO BERM AGAINST IT.
5. TYPE 5 FILL ADJACENT TO BERM - COMPACT TO 80% RELATIVE DENSITY, MAXIMUM.
6. INSTALL COIR FABRIC BY UNROLLING ROLL FROM WATERSIDE TO LANDSIDE OF BERM. INSTALL ROWS OF FABRIC WORKING FROM DOWNSTREAM TO UPSTREAM END OF BERM SO COIR FABRIC IS "SHINGLED" TO THE FLOW.
7. COIR FABRIC INSTALLATION SHALL EXTEND 5' UPSTREAM OF THE LONGITUDINAL EXTENTS OF THE BERM. TERMINATE COIR FABRIC IN AN ANCHOR TRENCH ON THE CREEK SIDE. SEE DETAIL 1, SHEET C14. STAKE AND BURY COIR FABRIC UNDER FILL ADJACENT TO BERM ON MARSH SIDE.

0 40 80 120 FT
1" = 40'

0 20 40 60 FT
1" = 20'

0 4 8 12 FT
1" = 4'

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APPROVED CH

PREPARED BY: cbec eco engineering

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SAN MATEO RESOURCE CONSERVATION DISTRICT
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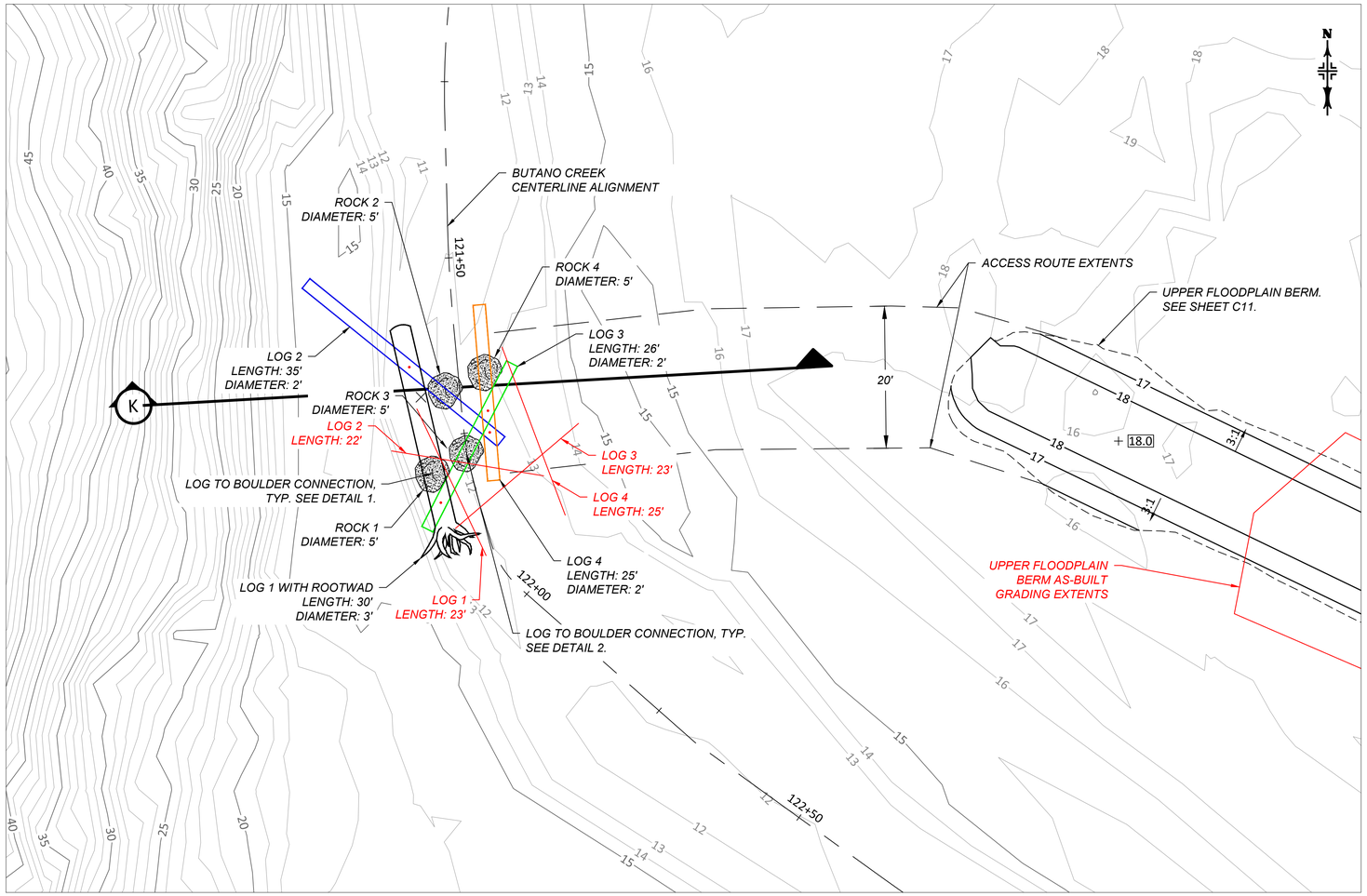
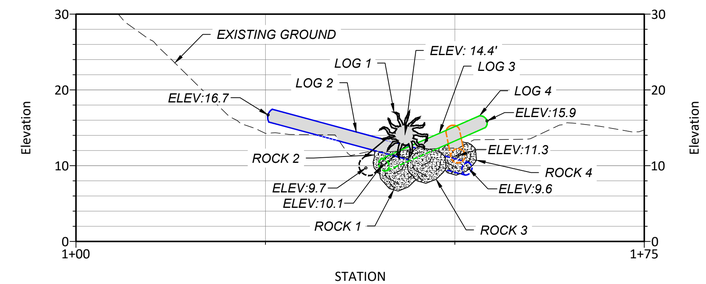
CALIFORNIA
PESCADERO
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT
WATER QUALITY BERM ENHANCEMENT DETAILS

JOB NUMBER 16-1027-4
DATE DEC 2019
SHEET C17
17 OF 19



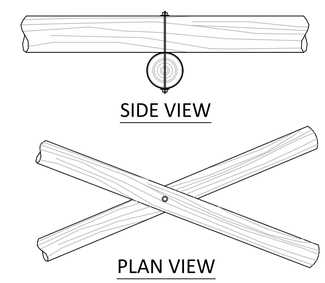
ENGINEERED LOG JAM PLAN

SCALE: 1" = 10'



K C18 ENGINEERED LOG JAM SECTION

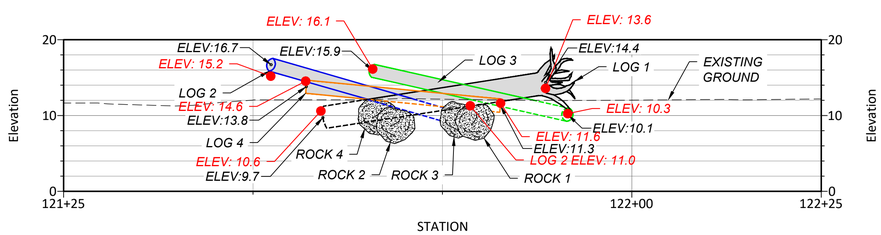
SCALE: 1" = 10'



1. DRILL 1-3/8 IN. HOLE THROUGH BOTH LOGS
2. INSERT 1-1/4 IN. DIA, STAINLESS STEEL, FULLY THREADED ROD (FTR)
3. INSTALL STAINLESS STEEL WASHER AND NUT ON EACH END OF FTR
4. ELIMINATE GAPS BETWEEN LOGS AND TIGHTEN NUTS ON EACH END AND CUT FTR WITH 1/2 IN. PROTRUDING FROM NUT
5. STRIKE ENDS OF FTR TO MUSHROOM ROD TO SECURE NUT
6. FILE OR GRIND OFF ANY SHARP EDGES
7. ELEVATIONS SHOWN REPRESENT LOG AXIS AND ARE APPROXIMATE. COORDINATE WITH OWNER'S REPRESENTATIVE ON LOG POSITIONING DURING PLACEMENT.

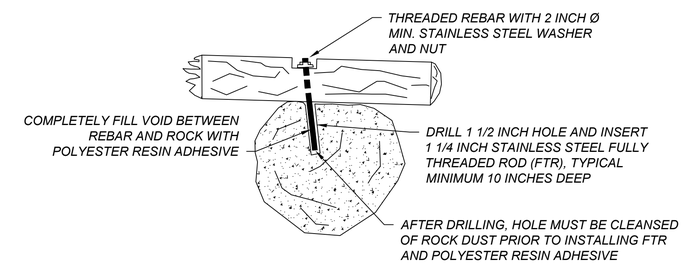
1 C18 LOG TO LOG CONNECTION DETAIL

NOT TO SCALE



ENGINEERED LOG JAM PROFILE

SCALE: 1" = 10'



2 C18 LOG TO BOULDER CONNECTION DETAIL

NOT TO SCALE

0 10 20 30 FT

1" = 10'

NOTES:

1. EXCAVATE TRENCHES TO ACCOMMODATE PLACEMENT OF ROCK BALLAST AND LOGS BELOW THE CREEK BED.
2. BACKFILL SHALL BE NATIVE BED ALLUVIUM MATERIAL THAT WAS EXCAVATED TO CREATE THE PLACEMENT TRENCH. BACKFILL SHALL BE FREE OF DEBRIS, EXCESS ORGANIC MATTER, AND PARTICLES GREATER THAN 6 INCHES.
3. COMPACT BACKFILL AROUND LOGS AND BOULDERS TO SUPPORT HAUNCHES AND ELIMINATE VOIDS.
4. COMPACT BACKFILL TO 85% RELATIVE DENSITY, MINIMUM.

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CALIFORNIA
PESCADERO
BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT

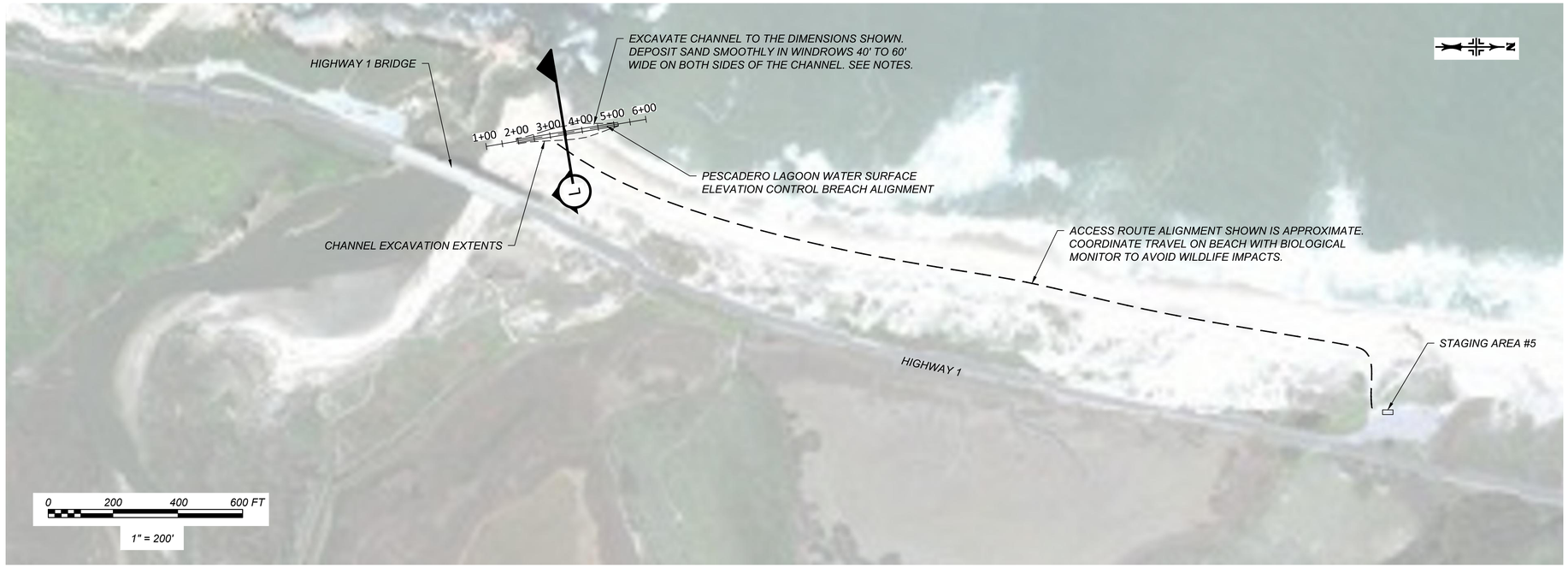
ENGINEERED LOG JAM PLAN AND SECTION

JOB NUMBER 16-1027-4

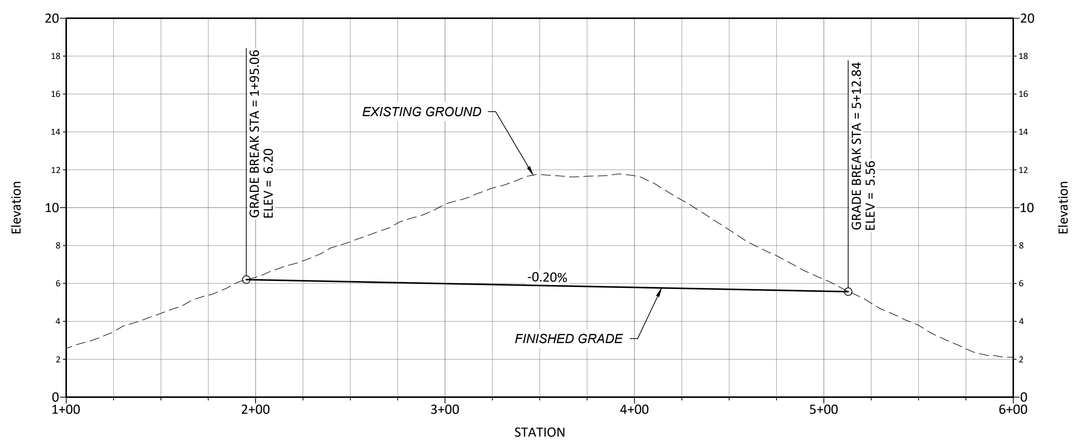
DATE DEC 2019

SHEET C18

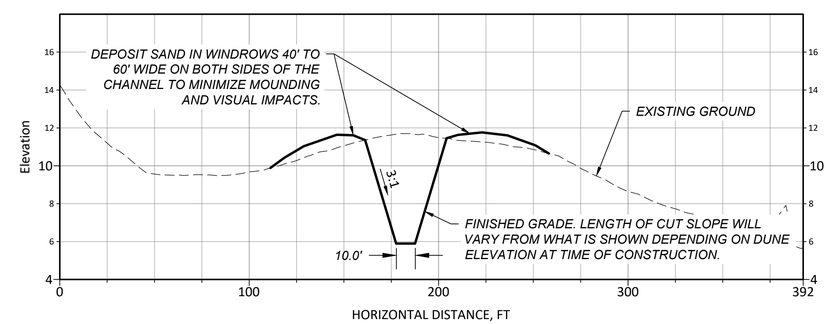
18 OF 19



-- / C18 PESCADERO LAGOON WSE CONTROL PLAN
SCALE: 1"=200'



-- / C18 PESCADERO LAGOON WSE CONTROL PROFILE
SCALE: H1"=40'; V1"=4'



L / C18 PESCADERO LAGOON WSE CONTROL SECTION
SCALE: H1"=40'; V1"=4'

0 40 80 120 FT
1" = 40'

0 4 8 12 FT
1" = 4'

NOTES:

1. PROVIDE A LAGOON BREACHING PLAN TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO CONSTRUCTING LAGOON BREACH.
2. WATER LEVEL MANAGEMENT ACTIVITIES WILL ONLY BE IMPLEMENTED FOR LAGOON CONDITIONS WITH WATER SURFACE ELEVATIONS ABOVE 6.5 FT.
3. BEACH CONDITIONS CHANGE REGULARLY. BERM ELEVATIONS MAY VARY FROM WHAT IS SHOWN ON PLANS. FIELD VERIFY CONDITIONS PRIOR TO CONSTRUCTION.
4. BREACHING ACTIVITY WILL BE PERFORMED ON AN ADAPTIVE MAINTENANCE BASIS. PERIODIC MAINTENANCE CONSTRUCTION MAY BE NEEDED TO MAINTAIN THE SHAPE OF THE CHANNEL AND LAGOON WATER SURFACE ELEVATIONS BELOW 6.5 FT.
5. ALL CONSTRUCTION AND BEACH TRAVEL WILL BE PERFORMED IN THE PRESENCE OF BIOLOGICAL MONITORS TO MINIMIZE IMPACTS TO WILDLIFE.
6. COORDINATE WITH OWNER'S REPRESENTATIVE ON ALIGNMENT OF WATER SURFACE ELEVATION CONTROL CHANNEL PRIOR TO EXCAVATION.

USE OF DOCUMENTS
THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF cbec, inc.

DOCUMENT RELEASE
FINAL 100%
REVISION NOTES

DESIGNED SD
DRAWN JP
REVIEWED SD
APPROVED CH

PREPARED BY: cbec eco engineering

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PESCADERO BUTANO CREEK CHANNEL RECONNECTION AND RESILIENCE PROJECT
PESCADERO LAGOON WATER SURFACE ELEVATION CONTROL
CALIFORNIA

JOB NUMBER 16-1027-3
DATE OCT 2018
SHEET C19
19 OF 19