

DISTRICT 11

MATERIALS INFORMATION BROCHURE

MATERIALS ENGINEERING BRANCH

**11-SD-56
KP 3.3/10.5
11-172821**

CT

CALIFORNIA DEPARTMENT OF TRANSPORTATION

Memorandum

To : LEON EDMONDS
Office Engineer
District 11

Date: January 31, 2002

File: 11-SD-56
KP 3.3/10.5
EA 11-172821

From : DEPARTMENT OF TRANSPORTATION - DISTRICT 11
Materials Engineering Branch

Subject: Materials Information Brochure

Attached herewith for your consideration

MATERIALS INFORMATION

FOR PROPOSED PROJECT ON ROUTE 56

IN SAN DIEGO COUNTY

STATE ROUTE 56

For Construction of a portion of Route 56
in San Diego County



Arthur F. Padilla
District Materials Engineer

AFP: ra

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RHillman (35)
CSavage (35)
LEdmonds (37)
JEgan (63)
LKemp (73)
Construction Admin. Senior (72)
Project File (mib 172821.doc)



MATERIALS INFORMATION

Not a Part of the Contract

11-SD-56
KP 3.3/10.5
EA 172821

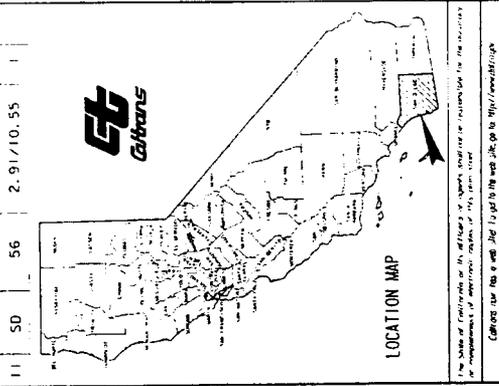
NOTE: Information contained herein has been compiled in accordance with Section 2-1.03 of the Standard Specifications. Additional information is available for review at the District 11, Materials Laboratory, 7177 Opportunity Road, San Diego, California.

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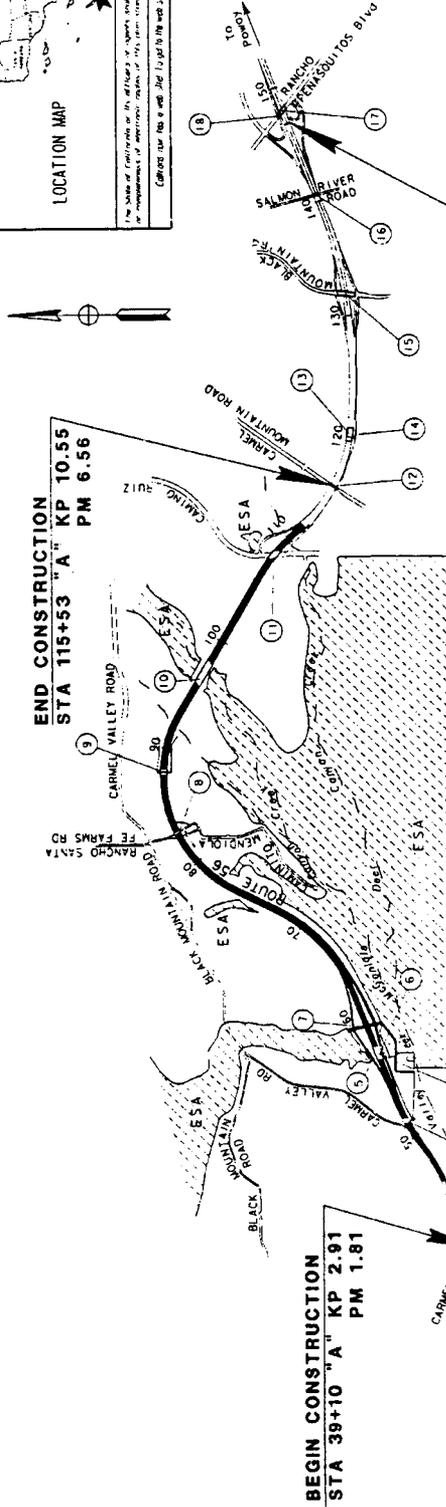
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**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY**

**IN SAN DIEGO COUNTY
IN SAN DIEGO
FROM CARMEL COUNTRY ROAD OVERCROSSING
TO CARMEL MOUNTAIN ROAD OVERCROSSING**

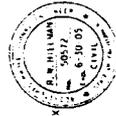
To be supplemented by Standard Plans dated July, 1999



| BRIDGE NO. | LOCATION |
|------------|-----------------------------------|
| 1 | CARMEL GREEN ROAD OC |
| 2 | CARMEL COUNTRY ROAD OC |
| 3 | CARMEL VALLEY RD UC R/L |
| 4 | GONZALEZ CREEK BRIDGE R/L |
| 5 | GONZALEZ CREEK (ON-RAMP) |
| 6 | GONZALEZ CREEK (OFF-RAMP) |
| 7 | CARMEL MOUNTAIN RD OC |
| 8 | CARMEL MOUNTAIN RD OC |
| 9 | CARMEL MOUNTAIN RD OC |
| 10 | CARMEL MOUNTAIN RD OC |
| 11 | CARMEL MOUNTAIN RD OC |
| 12 | CARMEL MOUNTAIN RD OC |
| 13 | CARMEL MOUNTAIN RD OC |
| 14 | PENASQUITOS OPEN SPACE BRIDGE R/L |
| 15 | BLACK MOUNTAIN RD OC |
| 16 | SALMON RIVER ROAD OC |
| 17 | RANCHO PENASQUITOS BLVD UC R/L |
| 18 | RANCHO PENASQUITOS BLVD UC |

ENVIRONMENTALLY SENSITIVE AREA

The Contractor shall possess the Class for class(s) of license as specified in the "Notice to Contractors".



NO SCALE
CONTRACT NO. 11-172824
CU 11227
CA 172821

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MATERIALS INFORMATION

R-VALUES

The recommended design R-value of 10 is based on the Geotechnical Design Report (GDR), Middle Segment, State Route 56, San Diego, California 11-SD-56-KP 3.3 to 10.5, EA 172820, by Group Delta Consultants for Boyle Engineering Corporation, dated September 28, 2001.

CORROSION ANALYSIS

As reported in the GDR, dated September 28, 2001, the project soils tested with a pH range of 6.7 to 7.7. Minimum electrical resistivity varied from 280 to 580 Ohms-cm. The water-soluble chloride content varied from 37 to 336 ppm. The water-soluble sulfate content varied from 122 to 247 ppm. These results indicate the existing soil is corrosive to metal pipe.

Any imported borrow sources other than from the existing project cut slopes would need to be representatively sampled and tested to confirm corrosion design life.

RECOMMENDED CULVERT ALTERNATIVES

Recommendations for New Culverts:

1. Plastic Pipe Culverts meeting the minimum and maximum fill height requirements. Either Corrugated Polyethylene (Type S), Ribbed Profile Wall Polyethylene, or Ribbed Profile Wall Polyvinyl Chloride pipe can be used.
2. Type II Modified cement and water-to-cement ratio of 0.45.

GROUND WATER

Groundwater depth varied from 0.3 m to 22.9 m below surface elevation with an average of 9.5 m below surface elevation. For further information, refer to the GDR, dated September 28, 2001.

GRADING FACTORS

According to the GDR, dated September 28, 2001, the grading factor should be approximately 0.85 to 0.9 for the overburden and alluvial soils that will be placed as engineered fill and compacted to 90 percent of the maximum dry density. The grading factor should be approximately 0.95 to 1.0 for natural formational materials excavated from the alignment and reused as engineered fills compacted to 90 percent of the maximum dry density. These factors are based on a comparison of in-place densities and 90 percent of the maximum dry density. However, historical data of the formational materials to be excavated indicate a potential swell factor of 5 to 10 percent. Previous experience with the same formations include the construction of the Route 52 freeway east of Oak Canyon to Mission Gorge Rd. and portions of widening Interstate 5 from south of Carmel Mountain Rd. to Carmel Valley Rd.

EARTHWORK QUANTITIES

The following earthwork quantities are from the January 9, 2002 Engineer's Estimate.

| | |
|--|--------------------------|
| Topsoil | 65,500 m ³ |
| Unsuitable Material (part of Roadway Excavation) | 25,700 m ³ |
| Imported Borrow | 35,000 m ³ |
| Roadway Excavation | 1,510,000 m ³ |
| Embankment (nonpay) | 1,602,000 m ³ |
| Structural Backfill (Retaining Wall) | 378 m ³ |
| Structural Backfill (Bridge) | 6569 m ³ |
| Structural Excavation (Retaining Wall) | 410 m ³ |
| Structural Excavation (Bridge) | 9922 m ³ |

MATERIALS SOURCES

A current list (dated January 7, 2002) of mining operations eligible to sell materials such as aggregates to the State of California in San Diego County follows:

| Calif. Mine ID | Mine Name | Operated By |
|-----------------------|-------------------------------|--------------------------------|
| 91-37-0002 | NORTH TWIN OAKS VALLEY QUARRY | HANSON AGGREGATE CO. |
| 91-37-0004 | MISSION VALLEY ROCK PLANT | H.G. FENTON CO. |
| 91-37-0005 | PALA ROCK PLANT (SAND) | HANSON AGGREGATE CO. |
| 91-37-0007 | CARROLL CANYON PLANT | HANSON AGGREGATE CO. |
| 91-37-0009 | WYROC SYCAMORE QUARRY | WYROC, INC. |
| 91-37-0010 | LAKESIDE SAND PIT | C.W. MCGRATH, INC. |
| 91-37-0011 | HILLSDALE PIT | C.W. MCGRATH, INC. |
| 91-37-0012 | EL CORZAN | CITY OF OCEANSIDE |
| 91-37-0013 | SIM J. HARRIS COMPANY | HANSON AGGREGATE CO. |
| 91-37-0015 | UCLH SAN MARCOS | HANSON AGGREGATE CO. |
| 91-37-0016 | OCEANSIDE/CARLSBAD | HANSON AGGREGATE CO. |
| 91-37-0019 | TTT QUARRY | SUPERIOR READY MIX CONCRETE |
| 91-37-0020 | HESTER'S GRANITE | HANSON AGG |
| 91-37-0021 | SLAUGHTER HOUSE CANYON | PIONEER CONCRETE OF CA., INC. |
| 91-37-0022 | MCGRATH BORROW PIT | C.W. MCGRATH, INC. |
| 91-37-0024 | MISSION GORGE PIT | SUPERIOR READY MIX CONCRETE, L |
| 91-37-0025 | RCP PITS 1,2,3, & 5 INCLUSIVE | RCP BLOCK & BRICK, INC. |
| 91-37-0026 | MISSION VALLEY | CALMAT CO |
| 91-37-0027 | SLOAN CANYON | SLOAN CANYON SAND COMPNAY |
| 91-37-0028 | MISSION VALLEY-EX FENTON | CALMAT CO |
| 91-37-0029 | CARROLL CANYON | CALMAT CO |
| 91-37-0030 | VULCAN – POWAY | VULCAN MATERIALS |
| 91-37-0033 | LAKESIDE | VULCAN MATERIALS |
| 91-37-0034 | EL MONTE PIT | HANSON AGGREGATE CO. |
| 91-37-0035 | OTAY RANCH PIT | HANSON AGGREGATE CO. |
| 91-37-0036 | NELSON & SLOAN PIT 12 | HANSON AGGREGATE CO. |
| 91-37-0037 | BORDER HIGHLANDS PIT | JIM & LOIS NELSON LP |
| 91-37-0042 | MONTE VISTA BORROW PIT | SAN DIEGO COUNTY PUBLIC WORKS |
| 91-37-0043 | ALLEN BORROW PIT | SAN DIEGO COUNTY PUBLIC WORKS |
| 91-37-0044 | BUCKMAN SPRINGS BORROW PIT | SAN DIEGO COUNTY PUBLIC WORKS |
| 91-37-0045 | OLIVE STREET BORROW PIT | SAN DIEGO COUNTY PUBLIC WORKS |
| 91-37-0046 | MCCAIN BORROW PIT | SAN DIEGO COUNTY PUBLIC WORKS |
| 91-37-0047 | BURNAND BORROW PIT | SAN DIEGO COUNTY PUBLIC WORKS |
| 91-37-0048 | WARNER BORROW PIT | SAN DIEGO COUNTY PUBLIC WORKS |
| 91-37-0050 | MORETTI-MESA GRANDE B.P. | SAN DIEGO COUNTY PUBLIC WORKS |
| 91-37-0052 | NATIONAL QUARRIES | NATIONAL QUARRIES |
| 91-37-0053 | JAMUL QUARRY | CALMAT CO. |
| 91-37-0054 | INLAND VALLEY MATERIALS | INLAND VALLEY MATERIALS |
| 91-37-0056 | PALO VERDE LAKE DESILTATION & | PALO VERDE RANCH HOA |
| 91-37-0057 | THE PAUMA VALLEY COUNTRY CLUB | THE PAUMA VALLEY COUNTRY CLUB |
| 91-37-0060 | RANCHO SAN DIEGO GOLF COURSE | J. CLOUD INC. |
| 91-37-0063 | WOODWARD SAND | LAKESIDE LAND COMPANY, INC. |
| 91-37-0064 | BAXTER QUARRY | M.J. BAXTER DRILLING COMPANY |