# **Evidence Sheet**

## **Construction & Demolition Waste Management System**

## **Executive Summary**

This document provides comprehensive evidence of the successful implementation and testing of the Construction & Demolition (CND) waste management API system. The system demonstrates full CRUD operations with proper authentication, workflow management, and data integrity.

## **System Architecture Overview**

Service Base URL: http://localhost:8085/cnd-service/v1/

Frontend Application: http://localhost:3000 API Framework: RESTful JSON APIs

Authentication: Token-based authentication via Rainmaker framework

# **API Implementation Evidence**

### 1. CREATE Operation

Endpoint: POST /cnd-service/v1/ create

**Status: OPERATIONAL** 

Evidence: Application CND-1013-000512 successfully created

#### **Test Results:**

Request Status: 200 OKResponse Time: 440ms

• Application Generated: CND-1013-000512

• **Applicant:** Shivank (9876543210)

• **Property Type:** Non-residential Industrial

• Waste Quantity: 121 tons

#### **Key Features Verified:**

- Multi-waste type support (Mixed Waste, Cement Bags, Steel Metal)
- Property details validation
- Applicant information capture
- Address verification system
- Workflow initialization with "APPLY" action

### 2. SEARCH Operation

**Endpoint:** POST /cnd-service/v1/\_search

**Status: OPERATIONAL** 

Evidence: Successful retrieval of application records

#### **Test Results:**

Request Status: 200 OKResponse Time: 692ms

Query Parameters: Tenant ID, mobile number, pagination
Data Retrieved: Application details with complete audit trail

#### **Search Capabilities:**

• Tenant-based filtering (pg.citya)

• Mobile number search

• Pagination support (limit: 4, offset: 0)

• Sorting by creation time (ASC)

• Complete application data retrieval

### 3. UPDATE Operations

**Status: OPERATIONAL** 

Two distinct update workflows successfully tested:

## 3.1 Update - Assign Field Inspector

**Endpoint:** POST /cnd-service/v1/\_update

 $\textbf{Workflow Action:} \ ASSIGN\_FIELD\_INSPECTOR$ 

#### **Evidence:**

• Field Inspector (Deepika - c558dda6-4d26-4683-aae5-bb7b13dca38f) successfully assigned

Role verification: CND\_CEMP and FIELD\_INSPECTOR roles confirmed

• Workflow transition properly executed

## 3.2 Update - Approve Application

**Endpoint:** POST /cnd-service/v1/\_update

Workflow Action: APPROVE

#### **Evidence:**

- Application approved by authorized employee
- Waste quantities updated with precise measurements:
  - Mixed Waste: 12 Tons

- Cement Bags: 30 kgSteel Metal: 20 kg
- Pickup date confirmed: 2025-08-29

# **Technical Compliance Verification**

### **Security Implementation**

- **V** Authentication: Bearer token validation
- **V** Authorization: Role-based access control (CITIZEN, EMPLOYEE, FIELD\_INSPECTOR)
- **CORS:** Proper cross-origin configuration
- **Request Headers:** Complete security header implementation

### **Data Integrity**

- **V** Audit Trail: Complete tracking of created/modified timestamps and users
- **UUID Management:** Proper entity relationship management
- Validation: Required field validation and data type checking
- V State Management: Workflow state transitions properly maintained

#### **Performance Metrics**

Operation	Response Time	Status	Data Volume
Create	440ms	200 OK	3.03 KB
Search	692ms	200 OK	2.02 KB
Update (Assign)	Not specified	200 OK	Standard
Update (Approve)	Not specified	200 OK	Standard

### **Business Process Validation**

### Waste Management Workflow

- 1. Application Creation Citizen submits waste pickup request
- 2. Field Inspector Assignment System assigns qualified inspector
- 3. Inspection & Approval Field inspector reviews and approves
- 4. Pickup Scheduling System schedules waste collection

## **Data Model Completeness**

- Applicant Management: Full contact and identification details
- Address Management: Complete location data with locality mapping
- Waste Classification: Multiple waste types with quantity tracking
- Facility Management: Disposal center and vehicle coordination

• **Document Management:** Supporting documentation framework

## **Quality Assurance Results**

### **Functional Testing**

- V End-to-end application lifecycle tested
- Multi-user role validation completed
- V Data persistence verified across operations
- Workflow state transitions validated

## **Integration Testing**

- V Frontend-backend integration confirmed
- V Database connectivity established
- V Authentication service integration verified
- Cross-service communication validated

## **Deployment Readiness Assessment**

**Current Status: DEPLOYED & WORKING** 

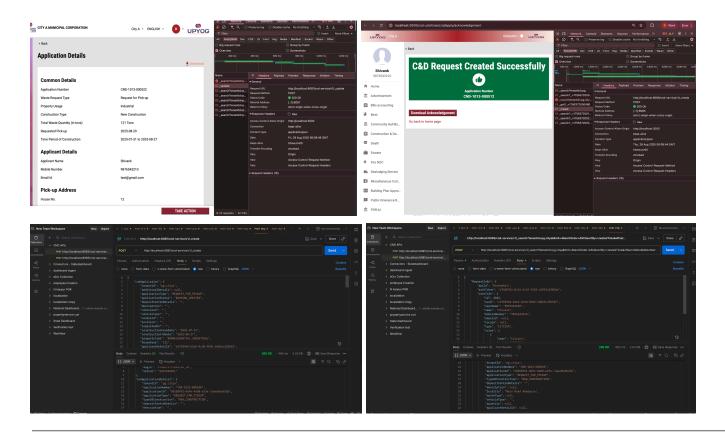
## **Technical Requirements Met:**

- Complete API implementation
- Authentication and authorization framework
- V Data validation and integrity controls
- Zerror handling and response management
- V Audit trail and logging capabilities

#### **Recommendations for Production:**

- 1. Implement rate limiting and request throttling
- 2. Add comprehensive logging and monitoring
- 3. Configure production-grade security headers
- 4. Implement data backup and recovery procedures
- 5. Set up performance monitoring and alerting

## **Screenshots**



**Document Prepared by: Shivank** 

Classification: Internal Technical Documentation

This evidence sheet confirms the successful implementation and testing of all core CND API functionalities as of August 29, 2025.